Drug and Cosmetic Industry

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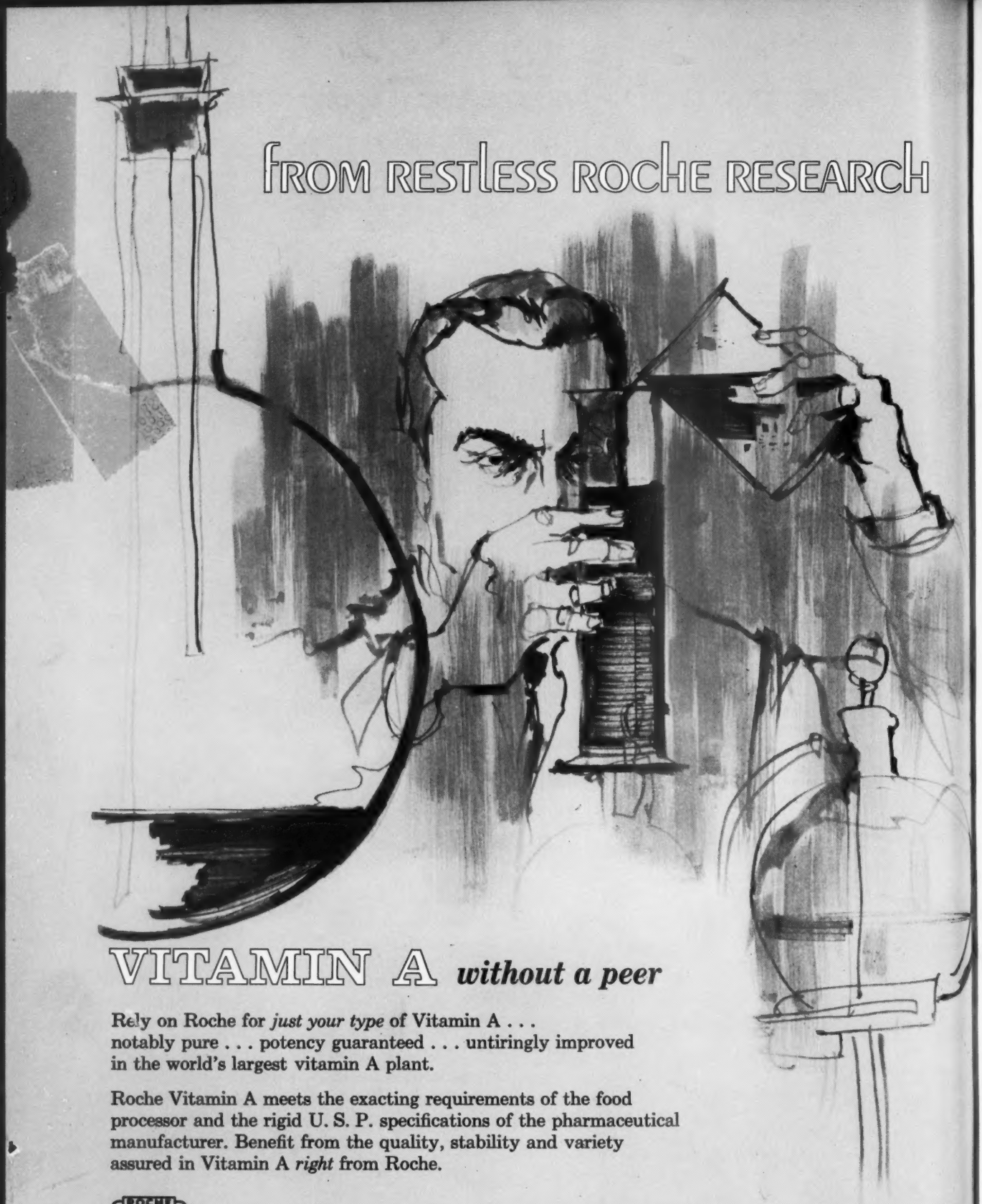

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Keeping Posted

Hazel Bishop Stock Sale

The Security and Exchange Commission issued an order banning the proposed sale of 1,274,823 shares of Hazel Bishop, Inc., common stock by the management and a group of stockholders. The shares were to have been sold through a secondary offering on the American Stock Exchange and in the over-the-counter market. The order banning the proposed sale of shares was issued on the basis that the registration statement included alleged false and misleading information. The registration has been before the Commission for more than a year and has been amended on several occasions at SEC insistence. The accuracy of the prospectus had been challenged by the Commission and among other things the company had agreed that it had actually operated at a loss of $707,996 in 1959 rather than a reported net profit of $102,258. The special counsel for the company, Justin N. Feldman, said he believed that except for a few new items not raised before, the company had complied with all SEC objections. The SEC acknowledged that its staff was in the process of examining the most recent amendments filed to the registration statement to determine whether deficiencies that previously existed had been remedied.

Vile Bodies

Brooks Atkinson, *The New York Times* "Critic at Large," secularizes and turns into a question the St. Paul statement: "Who shall change our vile body?" and answers that it is possibly the medicine men who hawk nostrums and panaceas on TV commercials, and seem to be engaged in a crusade to stamp out mental health in this country. "For countless advertising pitches on TV every day prove that the American body is hopelessly vile. We would all do well to get rid of it. It is afflicted with cold misery (can a cold really feel miserable), acid distress, irritated stomach walls, heartburn, tension headaches and constipation, which commits the unforgivable crime of destroying regularity. . . . Teeth reek of decay, especially in people who cannot brush after every meal. Hair is riddled with dandruff, which disfigures clothing. People in modern kitchens are crippled with arthritis. The liver acts like a plugged drain. Whatever the ancient Greeks and Romans may have thought, the American body is filthy and loathsome—not a fit thing to have around the house."

Mr. Atkinson continues, "It also smells. This is one of its most revolting characteristics, for it creates frightful social situations. After giving a brilliant piano performance, a grateful young lady raises her arms to acknowledge the applause. Alas, the perspiration stains under her arms embarrass her friends and will embarrass her when she knows about them. Hot music does it every time. . . . All TV commercials for deodorants stink. Many of the others are harrowing in one way or another. The trip hammer that pounds on the nerves, the bolts of lightning that split the head of the junior executive, the flaming stomach walls, the liver acid that burns holes in a cloth, the pockets of rotting food between teeth—portray the American body as one of nature's abominations."

Mr. Atkinson, it is just possible that the body would be this combination of abominations, if nostrums and panaceas were not available and offered to improve it.

More Counterfeit Drugs Seized

The Food and Drug Administration announced seizures of more than 6,000 tablets as counterfeits of well-known drugs at four firms in three states. FDA charged that the products violate the Federal Food, Drug and Cosmetic Act because counterfeit tablets have been substituted for the genuine articles, because the labels are false and misleading and because the tablets are imitations of other drugs and were offered for sale under the name of the genuine drugs. Brands being counterfeited were Dexadrine, Dexamyl, Diuril, Serpasil, Equanil, and Meticorten.

Commenting on the counterfeit cases, Commissioner George P. Larrick again urged retail druggists to insist upon receiving drugs only in original, sealed, manufacturer's packaging. "This is a bootleg operation easily detected by the retail pharmacist," Mr.

SILICONE NEWS from Dow Corning

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Larrick said. "The racket could not exist without the cooperation of unethical druggists."

Citric Acid in Israel

Ground has been broken for a $2 million Miles Chemical Company citric acid plant in Israel. Scheduled for completion in the spring of 1962, the plant will have an annual capacity of 1,500 short tons, 60 per cent of which will be utilized internally. It is to be built on a 10 acre site overlooking the Kishon River and is being designed to permit expansion into the production of related compounds.

When completed, the new plant will be an all-Israeli operation, controlled by Miles Chemicals Israel Ltd., a new subsidiary of Miles Laboratories.

Merck Acquires Cipelli

The Merck Sharp & Dohme International Division of Merck & Co., Inc. has acquired the assets of Cipelli Industria Farmaceutica, pharmaceutical manufacturing company located in Pavia, Italy. The Cipelli purchase will provide for expanded marketing of major Merck Sharp & Dohme specialties such as corticosteroids, diuretics, antihypertensives, and antihistaminics.

Cipelli's present line of ethical drugs will be continued, and its plant will be expanded to produce MS&D specialties. The Cipelli management and all personnel will be integrated into Merck Sharp & Dohme (italia) S.p.A., a subsidiary of Merck & Co., Inc.

Pharmacy Awards

Pharmacy students, 26 from seven colleges of pharmacy, received a total of $10,000 in awards in the 1961 Lunsford Richardson Pharmacy Awards program. This essay competition is sponsored by Richardson-Merrell Inc. Winning students in both undergraduate and graduate classifications in each of four geographical regions receive prizes of $500 each, and a matching amount is awarded to the student's school. Runners-up receive prizes of $100.

Socialist Cosmetics

According to a story by A. M. Rosenthal in *The New York Times*, the Japanese Socialist party will enter the business of marketing cosmetics this summer or fall. Products will include face lotion, hair cream, hair tonic, pomade and "nourishing cream." The Socialists maintain that they are fulfilling an obligation to give the masses what they want and concede that if women who use the cut-rate cosmetics are made happy enough to vote for the Socialists, the indirect benefit to the part will not be scorned. The cosmetics will be sold at the equivalent of 30 cents a package and any profits would be devoted to reducing prices.

Understandably, manufacturers of non-Socialist cosmetics have expressed their unhappiness and opposing politicians contend that this is a device to buy votes. We suspect that the Japanese Socialist party, failing to recognize that the purchase of cosmetics is fundamentally search for glamour, not the purchase of a commodity at a price, will stub its collective toe in this venture.

Government Price Fixing

Not only the members of the electrical industry need be upset by the new policies of the Justice Department in fixing prices, but other industries, and retailing, may have cause for concern. The Department has asked electrical companies to sign consent decrees that they will not sell products at "unreasonably low" prices when there is a "reasonable probability" that this will kill off competition. This Justice Department demand is already covered in the pricing provisions of the Robinson-Patman Act, but a consent decree puts the manufacturer on the defensive. It makes him liable for much higher fines under contempt-of-court action and there is no limit to these fines.

In conjunction with the recent price fixing prosecutions against electrical companies, this Justice Department action could lead to action for both two low and too high prices with the result of Government price stabilization at Government selected prices. The implications are certainly unpleasantly far-reaching.

West Coast Pharmacy Group Fined $40,000

The Northern California Pharmaceutical Association was fined $40,000 by Federal Judge Louis E. Goodman for conspiring to fix prescription drug prices in violation of antitrust laws. An additional fine of $1,000 was imposed on Donald K. Hedgpeth who drew up the pricing formula that the Government charged was used by the Association's 1,500 members. Government counsel asserted that there has been about a 100 per cent increase in prescription prices after the schedule had come into use in 1957. The decision is being appealed.

Evidence introduced by the Government revealed that the defendant Association had published and distributed a guide for establishing professional fees developed by pharmacist Hedgpeth. Defense counsel showed that there never was any agreement by the defendants to use the schedule, but the Court stated that it may be a violation simply to agree to mail such a schedule. Government attorney Don Banks asserted that Government evidence would show that more than 96 per cent of prescription drugs in Northern California in 1959 were dispensed exactly as they came from the manufacturer. "The pharmacist simply pours liquid from a big bottle into a little bottle or counts pills from a big box into a little box."

During the course of the trial, Judge Goodman publicly stated "there is an immunization under the statute (Sherman Act) for professional services . . . if what these pharmacists do is entirely a matter of

professional service, why I think the Court should keep their hands off of it, but I don't think that any experts would convince me that this is a professional service . . . a prescription is only a piece of paper . . . that requires no more professional service from the druggist than putting it in the package and delivering it."

For all the doubts we may have expressed in the past concerning the professional and merchandising abilities of some pharmacists, we are not yet ready to have our prescriptions filled, even if by pouring from one bottle into another, by any retail clerk. The pharmacist reads the physician's prescription (and sometimes corrects it, after checking with the physician), he gets the right drug in the right dosage from his shelves, he prepares a properly labeled package, and then files the prescription so that it is again available, if necessary. These acts result from training and education and add up to a most essential professional service.

Large Penicillin Doses

In a news story in *The New York Times* by Joseph F. Loftus, June 24, describing the President's recovery from his recent respiratory infection, the following was said: "The President is continuing to receive penicillin injections twice a day in units of 600,000 cubic centimeters. This is expected to continue for a few more days."

This is truly heroic treatment! One thousand cubic centimeters equal one liter; 3.785 liters equal one gallon; 600,000 cubic centimeters thus equal more than 158 gallons or almost three 55-gallon drums of injectible penicillin twice daily for several days. This is a heavy load to add to the President's official burdens.

The actual dosage, of course, is 600,000 units, twice a day for several days, and when newspapers give clinical details, they ought to have someone around who remembers what a cubic centimeter is.

Repackaged Drug Samples Attacked

The Food and Drug Administration has announced seizure actions involving abuse in the distribution of prescription drugs—the repackaging for sale of free samples initially prepared for distribution to physicians. It was charged that the repackaged drugs are not labeled as required by the Federal Food, Drug and Cosmetic Act. The labels do not bear the statement "Caution: Federal law prohibits dispensing without prescription," and do not give the common or usual name of the drugs and their active ingredients, identifying lot or control number, or name, address of manufacturer, packer or distributor.

According to Commissioner of Foods and Drugs George P. Larrick, "Physicians' samples are not illegal when properly labeled and used as such. However, some of the products involved are new drugs, permitted to be marketed only when prepared and packaged under special controls to assure safety and maintenance of identity, strength and proper labeling. Some are antibiotics requiring certification of every batch for safety and efficacy in FDA laboratories before release. The conditions found in repackaging of these physicians' samples short-circuit or nullify the essential safety controls required before marketing."

While some repackers contact physicians more or less at random, others rely on the cooperation of a small number of physicians who deliberately obtain samples and complimentary packages from the drug manufacturers to sell to the repacker. FDA has no evidence that physicians generally dispose of their samples improperly.

One source of samples is the detail man who supplements his income, and risks his job, by selling the samples directly to the packer. Some retail druggists buy the samples directly from the detail man or from the repacker at a discount from the regular price.

In the repacking, there have been instances of mislabeling, in which a potent, dangerous drug was confused with a safer item for a different treatment.

Lanvin Going Public

American Lanvin, in preparation for offering for public sale shares in the corporation, has submitted operating figures to the Securities and Exchange Commission. Net sales were $6.4 million in 1956, $8.4 million in 1957, $10.6 million in 1958, $13.8 million in 1959, and $16.7 million in 1960. The company markets seven basic fragrances, but Arpege and My Sin account for 90 per cent of the volume; the company believes that it has the largest sales volume in the United States of quality French perfumes and toilet waters and that its Arpege brand has the largest dollar volume of any single brand of imported French perfume.

Under the old arrangement, American Lanvin paid royalties to a Venezuelan corporation, and these amounted to $1.5 million in 1958, $2.0 million in 1959, and $2.4 million in 1960. Under the new arrangement, trademark rights have been assigned to American Lanvin in exchange for stock. Lanvin S.A. Trademarks will receive 1,210,000 shares of American Lanvin stock; Edouard Cournand was issued 876,300 shares of stock and his wife 113,700 shares. From the Cournand shares, 400,000 will be sold to the public, 30,000 to Yves Lanvin, president of French Lanvin, and 10,000 to Prince Louis de Polignac of French Lanvin. With royalty payments excluded, American Lanvin net after taxes amount to $693,000 in 1956, $834,000 in 1957, $1,232,000 in 1958, $1,561,000 in 1959, and $1,850,000 in 1960. Officers of the company are Edouard Cournand, chairman and president; Mme. Cournand, executive vice-president; Leon Schulman, administrative vice-president and treasurer; Raymond L. George, senior vice-president; Eugene Roberts, Daniel H. Sterling, Francois Denoux, vice-presidents; Helen Blake, assistant secretary. •

Too Many STORES?

A NEW PROBLEM FOR COSMETICS

BY PETER VAUTIN

FREDERIC LEWIS PHOTO

The cosmetic industry has at last reached the point at which a number of leaders in manufacturing, as well as in retailing, recognize that we are about to face a serious problem resulting from over distribution of the products of this industry.

There has been a dynamic increase during the last 25 years, and particularly in the last decade, in the amount of money spent by consumers for cosmetics. However, during this same period, the fantastic growth in the number of retail stores selling cosmetics means that too many retailers are doing a smaller annual sales volume in cosmetics than they did ten years ago.

If we take the gross sales for taxable cosmetics, that is, the cosmetic retail volume as reported by the Internal Revenue Bureau, and then subtract from this the total volume of the house-to-house companies, it is clear that, for the health of the industry, there are far too many retailers competing for cosmetic retail sales.

It is becoming all too evident that something will have to give way. Whether this will mean a hectic period of price cutting, perhaps stimulated by the titanic battle now shaping up between supermarkets

HAROLD M. LAMBERT PHOTO

and discount stores; whether it will mean that a large number of drugstores in a fringe position in cosmetics will have to discontinue this department for the most part; or whether there will be a resurgence of an insistent demand upon manufacturers to clarify their distribution and establish their identity with certain classes of retailers remains to be seen.

It will be remembered that up until about ten years ago there was a definite insistance on the part of the retail trade and a feeling of necessity on the part of manufacturers to identify themselves with certain groups of retailers. At that time we had many prosperous manufacturers primarily or exclusively associated with variety stores, and an even larger group insistent upon identifying their distribution, their reputation and their brand name primarily with department stores, and, to a certain extent, with the type of drugstore that had a fine, specialized cosmetic department. There were also a number of manufacturers loosely classified as operating in general mass distribution with heavily advertised utility products nationally priced at one dollar or less.

The last ten years have seen considerable blurring of these lines. However, as retailers face serious dilution in the number of dollars spent at retail for cosmetics each year, some change is bound to come.

We have today in cosmetic distribution nearly 1,000 department stores each with a separate specialized cosmetic department. In the drug field there are 54,000 drugstores with somewhere between 4,000 and 6,000 stores each maintaining a highly specialized cosmetic department and at least one full-time trained salesgirl. The chain drugstore field, with their A and B cosmetic stores, approximate 4,500 stores.

In the variety store field, where there is a vigorous resurgence to recapture an important share of the retail cosmetic business, there are about 12,000 stores. Some of these stores have moved over to self-service in a big way, some are entering the discount business, and many of them are among the key stores of the huge modern shopping centers.

At last report there were 24,151 supermarket food stores, 98 per cent of them featuring a health and beauty department. This is still a vigorously expanding field giving preferred attention to health and beauty products.

The discount stores, both closed door, open door and, as a standard operation of department stores, specialty stores, variety stores and supermarkets, are widely recognized this year as a big challenge in the retail field for the future. In a keynote address opening a Super-Market Institute Convention, the executive director spoke of the need to "reappraise our positions" in recognition of new marketing patterns. The challenge of the discount store was called the second retail revolution.

In addition, we have a wide variety of incidental retail classifications entering cosmetics, notably the big mail order houses, such as Sears Roebuck, in their excellent retail cosmetic departments.

Add to all this the new shopping centers, the new suburban stores, the new highway stores and army and navy commissaries and you get a picture not only of a retail pot that is boiling vigorously and merrily, but a retail situation that is insisting upon change and making new and critical demands upon manufacturers.

The heart and the profit of the cosmetic business today in retail stores is in the classification of taxable cosmetics. We have stated above that, if we subtract a continuously growing and already substantial house-to-house business, this leaves about $900,000,000 annually in retail cosmetic sales. Divide this by a minimum of 100,000 cosmetic retailers and you get a picture of extreme, unprofitable dilution.

From the retailer's and the manufacturer's viewpoint, however, this over-all figure is not the one with real significance. What really counts is the total sale of any one branded product, and the extent of retail dilution of that product.

Let's say that an annual retail sale of $10 million is a husky figure for any one branded cosmetic product. If we put an annual sale of $20 million, this will hardly cover a dozen products in the entire cosmetic business. And so, the question becomes, How many stores can profitably feature a product that will produce $10 million or even $20 million in annual retail sales? Surely the answer must be a fraction of the 100,000 stores.

In addition to this, as the department store continues its own vivid personality, as the future druggists who really specialize in cosmetics develop their own solid image in their community with cosmetic customers and, on the other hand, as the supermarkets, the variety stores and the discount houses, all intense, vigorous personalities, develop their public image, just what is the manufacturer going to do to hold his own essential image or personality?

Fortunately, the expansion of the last ten years has enabled a great many manufacturers to shelve this problem and a great number of retailers to forget it good naturedly. Now, however, with all our new frontiers, we certainly must add another one in this long overdue and, in some ways, frightening problem of distribution. We suspect that a great many manufacturers and a great many retailers will be compelled to face this issue in the next year or two, to face it bluntly and courageously, and probably to make some drastic revisions in their policies, in distribution, in advertising, in their product lines and in the personality image which they will feel is essential to establish both with the trade and with the public. •

Harvesting the Tuberose Fifty Years Ago

This photograph was taken 50 years ago in France, where the production of tuberose for fragrance is declining. As does jasmine, the tuberose continues to produce perfume long after picking, and its oil, too, is extracted by enfleurage, which gives a higher yield than solvent extraction. The slender perennial, a native of Central America, is cultivated for its perfume oil in southern France, in Morocco, China (Formosa) and Egypt. Flowers are picked immediately before the petals open.

DRUG COMPANIES WOO THE DOCTOR

BY MILTON MOSKOWITZ

As the pharmaceutical industry heads into the second half of 1961, the outlook is dim—or at least uncertain. Almost without exception, drug manufacturers reported sharp drops in earnings for operations in the first quarter of the year. The problems that have been with the industry for the past year or two are still there—unsolved. Down in Washington, the State of Tennessee is still represented by a man named Estes Kefauver, and he indicated last month that he hasn't forgotten about the industry, by issuing a new wave of subpoenas, this time mainly for organizations serving drug companies in advertising or public relations capacities.

Any industry beset with problems like these has to face the question, "What to do?" And it is not surprising to find that there are different answers to this question. Some companies would like to take an aggressive tack in answering the industry's critics. Others would prefer to go easy and try to ride out the storm with a minimum of fanfare. Some companies seek to retaliate. Abbott Laboratories and Parke, Davis & Co., still won't advertise in *Life* today because of the rather hostile article the magazine ran on the industry last year. In the case of Abbott, this meant switching some $300,000 of Sucaryl advertising out of *Life*.

However, one tactic now seems to be winning increasing favor, and this might be summarized as: "Woo the Doctor." The ethical drug industry has, of course, always been in the position of being a supplicant to the medical profession. Those prescription pads determine sales and no drug manufacturer can be foolhardy enough to cross organized medicine, although what pharmaceutical executives say privately may be another matter. Right now, though, there appears to be a concerted movement afoot to line up the physicians on the industry's side. Edward Bursk, editor of the *Harvard Business Review* and a consultant to some members of the industry, strongly advocated such an approach in a keynote address at the annual promotion clinic recently held by the Pharmaceutical Advertising Club of New York. Pointing out that doctors are both "influenceable and influencing," Mr. Bursk asserted that the industry will win its fight if it can win the support of the medical profession. "If you do a good job on them," he said, "they will do a good job for you on their patients." Mr. Bursk contended that the most disastrous thing the industry could do now would be to pull in its horns and try to tread the heavy waters. This, he said, will get the industry nowhere.

Efforts to win the allegiance of doctors were already under way when Mr. Bursk spoke. The Pharmaceutical Manufacturers Association is financing an image-building program through Hill & Knowlton, the nation's largest public relations company and an expert on "sick industries," and a good part of this program is directed at the medical profession. For example, Hill & Knowlton has been placing, on

Actor Burgess Meredith, whose father was a general practitioner, is shown delivering one of the commercials on the June 27th "Doctor B" program telecast over the NBC-TV network. The documentary was co-sponsored by the A.M.A. and the Merck Sharp & Dohme division of Merck & Co.

behalf of the PMA, full-page editorial-style ads in medical publications to tell the industry's story. These ads have cleverly sought to link the industry's fate hand-in-hand with the fate of the medical profession. One ad in this series made the point this way:

"An editorial writer recently made the interesting suggestion that the pharmaceutical industry might have avoided much of the current public interest in its affairs if they had simply restricted themselves to making aspirin tablets and rubbing alcohol, competing only by debating which aspirin dissolves faster.

"No one has seriously suggested a return to the 'good old days' in therapeutics, but there are apparently some who would like to destroy the system that has produced for us the finest medical care in the history of the world. Whether they attack the freedom of the patient to choose his physician, the freedom of the physician in the practice of his profession, or the freedom of the pharmaceutical industry is immaterial.

"If the desideratum is simply maintenance of the status quo in health care, medicine might well have rested on its 19th century laurels and the pharmaceutical industry on aspirin tablets and rubbing alcohol."

The approach here is an old one. It might be expressed (although no one in the industry will so describe it) as: "We'll scratch your back, and you scratch ours." You can see this approach in the "Great Moments in Medicine" series which Parke, Davis & Co. has been running as a worldwide institutional advertising campaign. You can also see it in the institutional campaign which A. H. Robins, Inc. has been running for some time in consumer magazines. This campaign, which is merchandised to doctors in medical publications, is a salute to the medical profession, showing how doctors get their education and training and how they serve mankind. This year, for the first time, the Robins campaign has been moved into the most expensive magazine medium, *Life*. (Robins apparently does not share the feelings Abbott and Parke, Davis have for the Luce publication.)

Other companies are now hopping on this bandwagon. In May, Mead Johnson & Co. announced with great fanfare that it was launching a series of five ads in five consumer magazines to "present the vital but less familiar aspects of the physician's work and life—his varied roles such as scientist, educator, confidant, decision maker, student." The ads have been scheduled in *Newsweek*, *Saturday Evening Post*, *McCall's*, *U. S. News & World Report* and *Today's Health*. Mead Johnson made a point of noting that the campaign was developed in consultation with the American Medical Association. The first ad in the series brought home this message:

"The practice of medicine is truly the ultimate in one human being's service to another . . . the sort of service you must be able to choose—and change—freely to fit your own needs. It is the kind of service

(*Continued on page 116*)

AEROSOL STATISTICS 1960

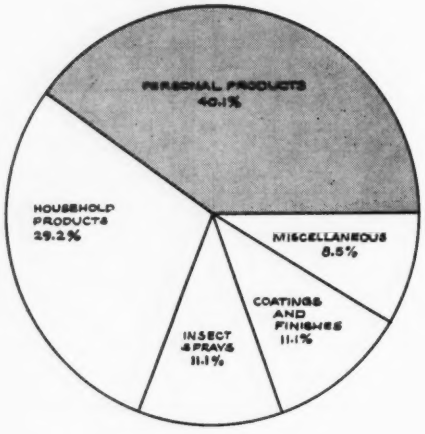
The tenth annual Aerosol Pressure Products Survey of the Aerosol Division of the Chemical Specialty Manufacturers Association again covers only nonfood pressurized packages. An even larger percentage of the aerosol industry contributed to the survey than in previous years. Questionnaires were mailed to all known fillers, container manufacturers, and valve manufacturers. Replies were sent directly to a firm of certified public accountants who tabulated all the data and submitted only the final figures.

Aerosol container manufacturers were asked to report the total number of units produced by them in 1960, regardless of the size of the container and the type of aerosol. Nine companies reported a total of 619,862,939 such units.

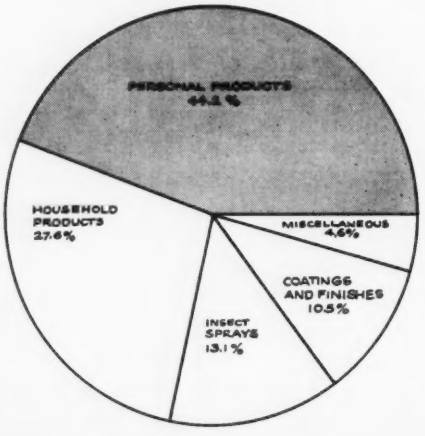
All aerosol valve manufacturers were asked to submit a figure representative of the total number of aerosol valves produced and sold in 1960, regardless of size of package or type of product. Eleven companies reported a total of 788,290,245.

Questionnaires were sent to 216 companies with filling lines. Of these, seven reported no production and 128 responded with a detailed breakdown of aerosol products.

TOTAL AEROSOLS 1960
606,992,000 Units



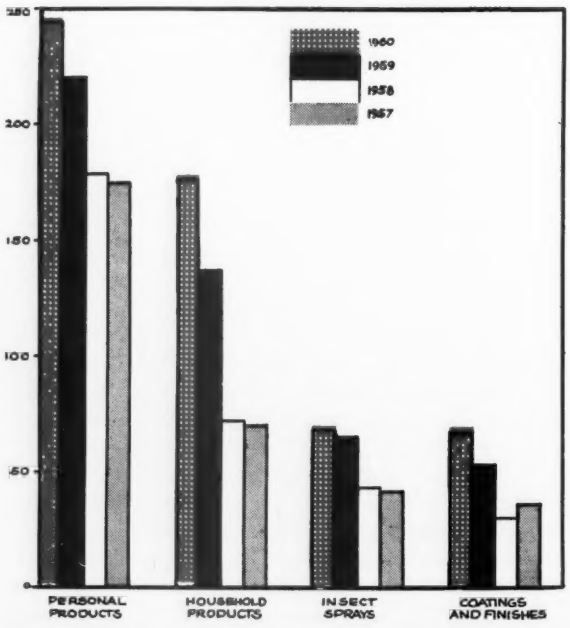
TOTAL AEROSOLS 1959
498,288,000 Units



NONFOOD PRESSURE PACKS
Thousands of Units

	1960	% Change	1959	% Change	1958
Personal products	243,698	+ 10.8	219,895	+ 23.0	178,842
Household products	176,814	+ 28.8	137,333	+ 90.6	72,063
Insect sprays	67,469	+ 2.2	65,911	+ 53.9	42,300
Coatings	67,207	+ 27.9	52,556	+ 74.5	30,123
Miscellaneous	51,804	——	22,592	——	18,056
Total	606,992	+ 21.9	498,288	+ 46.00	341,384

TOTAL AEROSOLS
Million Units



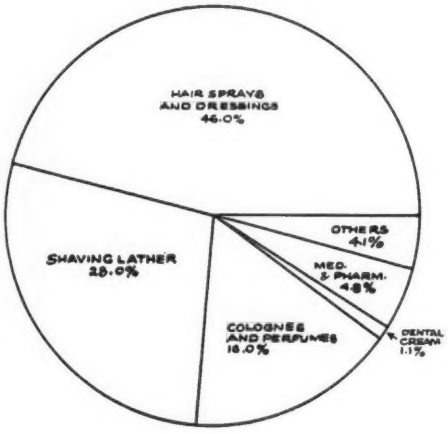
Coordinating information on containers, valves and data supplied by fillers, the committee estimated over-all production, allowing for nonreporting fillers. The total number of nonfood aerosols produced in 1960 in the United States and Canada was estimated at 670 million, for a 17 per cent growth over 1959, instead of the 607 actually reported. Reported Canadian production amounted to 25,126,922. The difference between reported and estimated production figures can be accounted for by adjusting the data in a number of categories. The following are larger than reported (in millions): insect sprays by 15 million, coatings and finishes 1, room deodorants 15, hair sprays 5, medicines 2, colognes 3, glass cleaners 2, shoe and leather dressings 2, starches 5, soaps 7, and all others by 6 million.

The tabulated results show that total aerosols increased by 21.9 per cent, from 498.3 million in 1959 to 607.0 million in 1960. Personal product aerosols increased from 219.9 million in 1959 to 243.7 million in 1960, a change of 10.8 per cent, but these items accounted for only 40.1 per cent of the total in 1960 as against 44.1 per cent in 1959. Household products are rapidly growing, showing an increase of 28.8 per cent in 1960 over 1959; insect sprays increased by only 2.2 per cent, but coatings and finishes increased by 27.9 per cent.

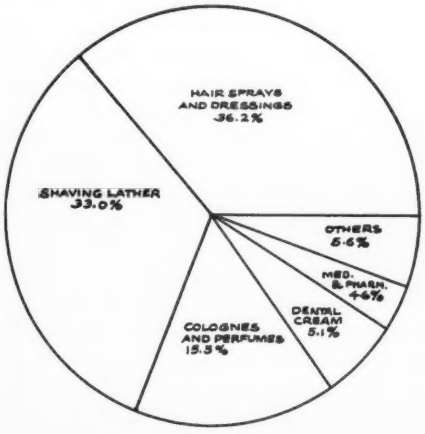
Personal products, the largest aerosol category, includes hair sprays and dressings, which increased from 79.7 million in 1959 to 111.9 million in 1960, or by 40.2 per cent, and represented 46.0 per cent of personal products in 1960, 36.3 per cent in 1959. Shaving lather decreased in number of units by 6.1 per cent, from 72.6 million in 1959 to 68.2 million in 1960, accounting for 33.1 and 28.0 per cent. Even so, the use of shaving lather has actually increased in pounds used, since many more of the 16 ounce pack are being sold. Colognes and perfumes maintain a healthy increase, especially in the smaller package sizes, from 34.1 million in 1959 to 39.0 million in 1960, for a 14.4 per cent increase, and representing 16.0 per cent of personal products in 1960, 15.5 per cent in 1959.

Dental creams in pressure packs have obviously failed to live up to first expectations, declining by 75.2 per cent in 1960 to 2.8 million units, and medicinal and pharmaceutical products have shown a comfortable, but not spectacular increase in 17.2 per cent to 11.8 million. •

PERSONAL PRODUCTS AEROSOLS 1960
243, 698,000 Units



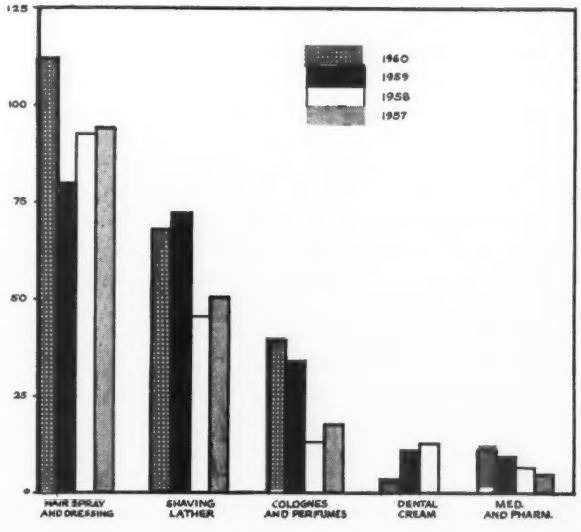
PERSONAL PRODUCTS AEROSOLS 1959
219,895,000 Units



PERSONAL PRODUCTS
Thousands of Units

	1960	% Change	1959	% Change	1958
Hair sprays and dressings	111,861	+ 40.2	79,687	— 13.9	92,594
Shaving lather	68,174	— 6.1	72,611	+ 60.2	45,314
Colognes and perfumes	39,021	+ 14.4	34,077	+151.3	13,563
Dental creams	2,785	— 75.2	11,242	— 12.9	12,906
Medicinals and pharmaceuticals	11,777	+ 17.2	10,036	+ 40.8	7,130
Others	10,081	———	12,242	———	7,335
Total	243,698	+ 10.8	219,895	+ 23.0	178,842

PERSONAL PRODUCTS AEROSOLS
Million Units



Should a manufacturer send physicians drug samples? Here is Mr. Hetterick's study of the problem, which he discussed in April at the Public Health Forum held by the Brooklyn College of Pharmacy, Long Island University.

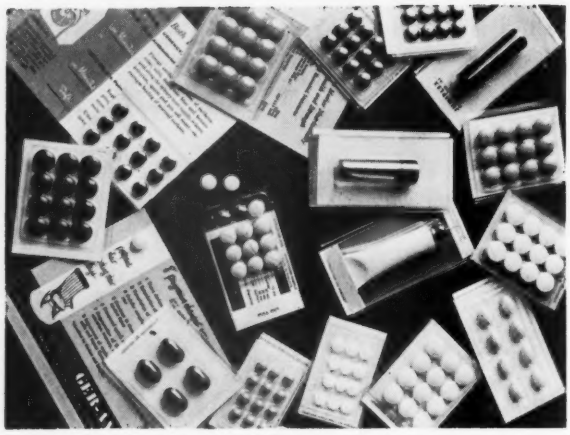
DRUG SAMPLES

BY RAYMOND D. HETTERICK PRESIDENT, LAKESIDE LABORATORIES, INC.

Sampling has been criticized by some physicians as wasteful, unnecessary and expensively flamboyant. Some pharmacists have criticized sampling as economically harmful to the prescription business. It is also said that some patients may be confused when their physician gives them samples for trial, on the premise that it may encourage the thought that his diagnosis and treatment may also be on a trial basis.

A re-evaluation of drug sampling, which is one of our most important professional merchandizing techniques, is obviously a timely subject.

Webster defines a sample as "a part of anything presented for inspection, or shown as evidence of the quality of the whole."



In the textile industry, the customer is often given a sample, which is referred to as a "swatch" of material. The manufacturer of the cloth makes available for the potential customer a small piece of material so that the customer can see the color, the texture, in short the suitability of the material for the purpose for which it is to be put. There is, however, no risk that the customer will make anything of the "swatch," short of a highly economical handkerchief. No problem.

From the beginning the problems have been much more difficult in drug sampling. The basic human desire to see and touch moves the physician as much as the textile customer. The many large and small firms in our industry have proved this to their satisfaction over and over again. In fact, an average of one-third of all advertising and promotional expenditures is devoted to sampling.

In the early days of sampling, the choice was rather simple. The physician was given either the standard trade package or he was presented with one or two pills for identity purposes.

Gradually, through trial and error, our current sampling practices evolved, and we must admit that the industry has developed some expensive and elaborate packaging. The most common objective of sampling is to provide the patient with a sufficient supply of medication to carry him until he can conveniently fill his prescription for the full amount needed for maintenance or cure.

I recently prepared and mailed a questionnaire to 50 leading drug manufacturers because I felt that such a survey would provide valuable information. I asked my colleagues in the pharmaceutical business about the importance of sampling and about its future. I asked them to comment on such matters as sample size and frequency of distribution, and I also asked them for an opinion of the effect of sampling on the pharmacists' prescription business.

My correspondents agreed, first of all, that sampling is much more important for some products than for others and more necessary for *new* products than for older established ones. For example, here is a typical quote on the value of sampling from one

of the largest companies in our industry:

"We consider sampling to be an important part of company efforts to acquaint physicians with our products, particularly at the time of introduction of new products. Samples make it possible for the physician to give the medication an actual trial with a patient of his choosing and, by observing the results, satisfy himself as to its application in his practice."

A similar response from another source:

"We feel that physician sampling is extremely important, especially where the product's relative effectiveness can be easily determined by the use of a moderate quantity of dosage units."

A thoughtful executive of a much smaller house was concerned with the time gap between the first exposure to a new drug and actual first use. He wrote:

"The time when a physician first learns of a new drug and how to use it and the time when he has occasion to actually use it may be separated by days or even weeks. Since samples are usually retained by the physician they serve as constant and tangible reminders until such time as they are needed for actual trial use."

The importance of sampling in maintaining and increasing sales volume on relatively well-established products is indicated by the following quote:

"We are still holding and building acceptance on several *million-dollar products* based on mail sampling alone, without the support of our field force."

Most of those who answered my queries indicated that their firms allocated 30 per cent or more of the promotional budget to samples and their distribution. As you know, distribution costs include such items as the mailers, the enclosed literature, and the mailing costs such as postage.

Now, what about size of sample and frequency? Here is a typical comment:

"The frequency of sampling is to a large degree determined by the nature of the product and competitive marketing strategy. We have seen solid increases in prescriptions with relatively frequent samplings and a sampling frequency as low as twice yearly has also been productive and profitable. The size of the sample is usually determined by the nature of the product. Generally speaking, we divide our samples into three categories: starter samples, visual samples for demonstration purposes, and therapeutic samples."

Another equally typical response:

"In general, for a new product we try to make the sample size large enough so that, by using the sample alone, the physician is able to definitely observe the therapeutic effectiveness of the drug. In later sampling of the new drug—or in the case of more established, older drugs—a 'starter' size is most beneficial. In this case, perhaps only one, or at the most two, days' dosage requirements are packaged in a single sample unit."

You will be particularly interested in some of the comments on the effects of sampling on the retailers' business. The following are typical:

"It is our feeling that samples to the physician ultimately increase the retail pharmacists' business since they stimulate the physician to try the drug, demonstrate its efficacy and then use it routinely in his practice. I firmly believe that without sampling many drugs would never attain the volume that they have reached and therefore the druggist would not realize the maximum prescription volume."

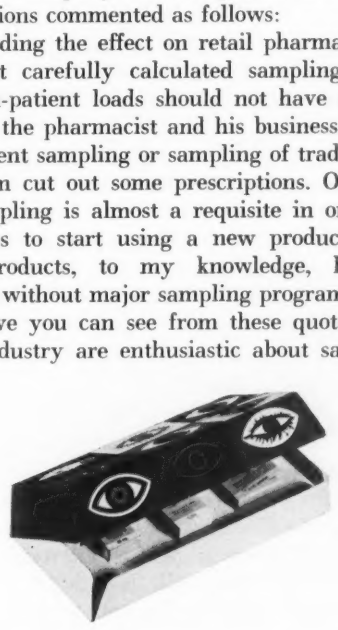
Here is another comment, which, incidentally, points up the need for better control:

"Adequate sampling of physicians creates an increased demand which benefits both the patient and the retail pharmacist. We realize that many pharmacists do not recognize this, due primarily to the fact that the use of samples is sometimes abused by some salesmen."

Another company with a high rate of new product introductions commented as follows:

"Regarding the effect on retail pharmacists, I believe that carefully calculated sampling based on physician-patient loads should not have an adverse effect on the pharmacist and his business. However, too frequent sampling or sampling of trade sizes certainly can cut out some prescriptions. On the plus side, sampling is almost a requisite in order to get physicians to start using a new product and few major products, to my knowledge, have been launched without major sampling programs.

I believe you can see from these quotes that we in the industry are enthusiastic about samples and



that we have also recognized clearly our obligation to consider the effect of our sampling programs on the retail pharmacist's business.

I assure you that we are cognizant of what may appear to be an immediate loss of a prescription, but is this truly the test? After all, your lost prescription is a lost sale for the manufacturer also.

Finally, a clear majority of respondents felt either that sampling would remain at its present level or might even increase, primarily because of the increasingly competitive climate of the industry. On the other hand, a smaller group felt that, in the face of current Federal restrictions and some professional criticism, the practice might diminish.

Suppose for a moment that some Federal agency bans sampling by pharmaceutical manufacturers. Physicians and pharmacists would be affected, and

(*Continued on page 114*)

A new Italian process and new derivatives permit a new look at these emulsifying agents for cosmetic formulation.

SUGAR ESTERS IN COSMETICS

BY LUCIANO NOBILE, Ph.D.

LEDOGA - LE - PETIT, MILAN, ITALY

In view of the requirements that must be met by an emulsifier for human external use, as in cosmetics for normal skin care, the choice of these products is limited to a few types of surfactants which have become familiar classics in current formulations. It must be noted, however, that no ideal surfactant has been available.

The search for new emulsifiers suitable for use on the normal skin, on the one hand, and the study of their compatibility with the active constituents used in modern cosmotology, on the other, have brought about the preparation of new emulsifying substances from the categories of the most heterogeneous hydrophile-lipophile groups. Among these, the sugar esters and sucroglycerides have recently come to assume a considerable importance.

These entirely new surfactants—prepared for the first time in the United States by combining sucrose with fatty acids so as to bind to the sugar molecule one, two, or even three radicals of fatty acids—have been prepared also in Italy by new types of synthesis and with far more complete purification of the terminal esters to reach the maximum surface active power and the maximum suitability for their uses.

Starting from natural fats instead of fatty acids, by an original process developed in Italy, other sucrose combinations also having high surfactant power, called sucroglycerides, have been obtained.

These products are solid or waxy, with melting points ranging from 80° to 130°, for sugar esters. Sucroglycerides have a lower melting point, and are more or less semi-solid in consistency.

Sucrose monolaurate is water-soluble, while the other sugar esters and sucroglycerides are hydrodispersible by heat with formation of gels. The liposolubility of these products is minimal for all types of oils, mineral, vegetable or animal.

Dispersion or water solutions are obtained by the use of heat, adding the fatty part to be emulsified with thorough mixing, followed by cooling.

Emulsifying power. The products are nonionic and thermostable even after prolonged boiling with water. Their emulsifying power can be compared with that of normal polyoxyethylene derivatives.

Behavior towards the active orthodermic principles. Many active principles recommended in modern cosmetics are of biological origin. Control studies have proved that cosmetic preparations containing these bioactivators, if prepared with polyexyethylene emulsifiers, show substantial loss of activity with the passage of time, but their activity is maintained almost completely, if they are prepared with sugar esters of sucroglycerides.

Indications for use. Due to their nonionic nature, the sugar esters and sucroglycerides can be used in the formulation of skin products with acid or slightly alkaline *p*H.

Detergent lotions and creams: monolaurate, monopalmitate, sucroglycerides of coconut or palm to the extent of 1 to 4 per cent.

Day creams: monostearate, monopalmitate, sucroglycerides of palm or soya, 2 to 4 per cent.

Oily creams: sucroglycerides of tallow, soya or palm, dipalmitate, palmitate or monostearate, 3 to 4 per cent.

Toothpastes: monopalmitate, monostearate, sucroglycerides of palm or coconut, 1 to 2 per cent.

Suntan creams, creams for such uses as pediatric: monopalmitate, monolaurate, monoleate, sucroglycerides of palm or coconut, 2 to 3 per cent.

Manufacturers can utilize the wide range of properties of the two series of sugar esters and sucroglycerides in combination, depending on the final characteristics desired.

Finally, the sugar esters and sucroglycerides are potentially very useful raw materials in cosmetics because of their high dispersion and detergent power, their absolute lack of toxicity, and their moderate surfactant activity, and because they do not interfere with the action of preservatives and bioactive products.

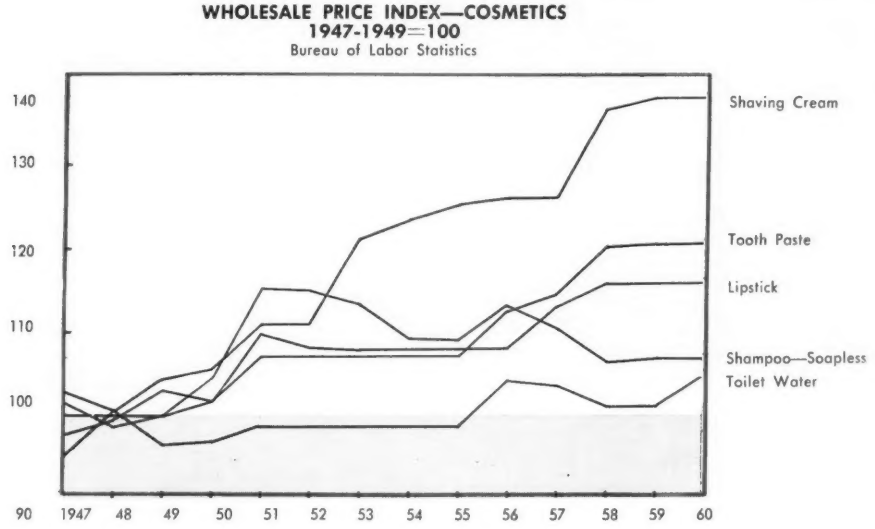
These products will have important application in modern cosmetic formulation, by virtue of their technical properties, as well as for the orthodermic results achieved with them.

Behavior with the preservatives and antiseptics. Many emulsifiers inactivate preservatives derived from parahydroxybenzoic acid. Comparative tests and repeated control studies have shown that, with the sucrose esters and the sucroglycerides, no interference with or diminution of the activity of the preservatives occurs.

Detergent power. The detergent power of the sugar esters and sucroglycerides has been found to be excellent. It increases with the increase of carbon atoms

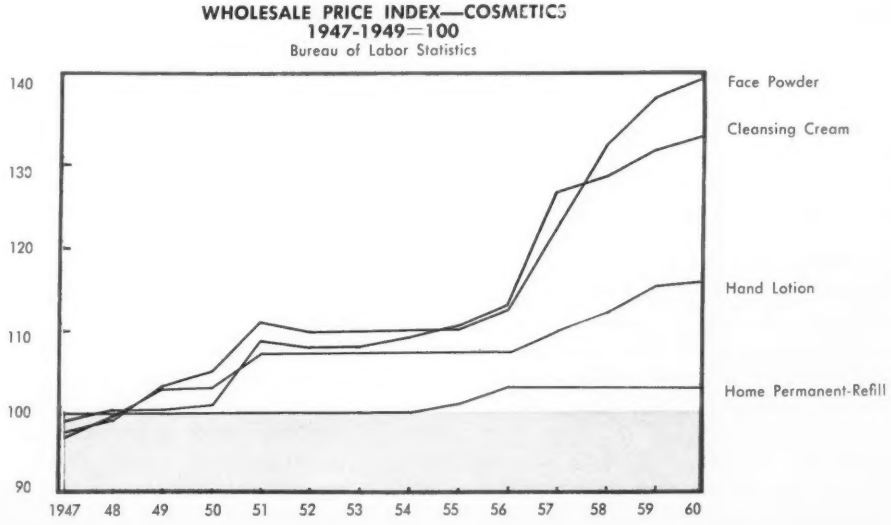
(*Continued on page 82*)

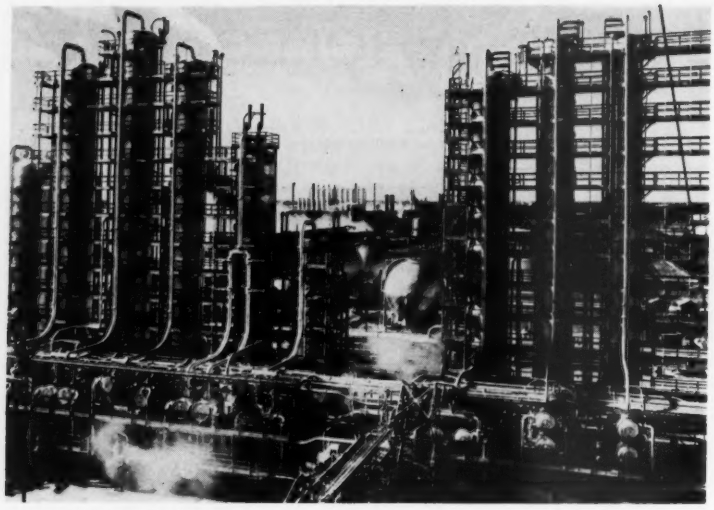
COSMETIC WHOLESALE PRICES



In the post-war period, since 1947, the combined wholesale price index of cosmetics, perfumes and other toilet preparations as calculated by the United States Bureau of Labor Statistics rose from 99.3 in 1947 (1947 to 1949 average = 100) to 102.0 in 1950, 108.1 in 1955, and 118.4 in 1960. During this same period, the wholesale price index for all commodities moved from 96.4 in 1947 to 117.6 in 1955 and 120.0 in 1960, while the index for all commodities, excluding farm products and food, rose from 95.3 in 1947 to 117.0 in 1955, and 128.6 in 1960. Obviously, wholesale prices of cosmetics, perfumes and toilet preparations have not kept up with the general rise of prices.

The nine components of the B. L. S. cosmetic price index are toilet waters, soapless shampoos, home permanent refills, toothpastes, cleansing creams, hand lotions, face powders, lipsticks, shaving creams. The price index for toilet waters was 102.8 in 1947 and 104.7 in 1960; for the same years, the index numbers were 101.4 and 106.6 for soapless shampoos, 100.0 and 102.9 for home permanent refills, 97.8 and 120.4 for toothpastes, 99.1 and 133.1 for cleansing creams, 97.4 and 115.4 for hand lotions, 100.0 and 115.7 for lipsticks, 97.7 and 139.9 for face powders, and 95.1 and 139.9 for shaving cream. •





COURTESY STANDARD OIL OF NEW JERSEY

PETROLATUM FOR

BY HANS SCHINDLER SONNEBORN CHEMICAL AND REFINING CORPORATION

Perhaps no more important contribution has been made to our Pharmacopoeia for a number of years, than the dense product known, variously, as vaseline, cosmoline, petroline, etc."

The statement is found in a book by Benjamin J. Crew published in 1887,[1] which is one of the earliest American texts concerned with not only the production but also the refining of petroleum, and refers to the salve-like colloidal system of liquid and solid hydrocarbons which we now know as petrolatum. This name appeared for the first time in the U. S. Pharmacopoeia of 1880 and was, no doubt, coined to provide the neutral designation required for Pharmacopoeia use.

Petrolatum was defined by the 1880 Pharmacopoeia as "a semi-solid substance consisting of hydrocarbons chiefly of the marsh-gas series ($C_{16}H_{34}$ — $C_{32}H_{66}$) obtained by distilling off the lighter and more volatile portions from American Petroleum and purifying the residue." Two varieties are recognized: a soft one with a melting point of 104° F., and a firmer one, melting up to 125° F. The softer variety evidently was considered as "true" petrolatum, since the Pharmacopoeia states that the low-melting variety is to be dispensed when petrolatum without any specific melting point is prescribed.

Actually, it is somewhat surprising that the list of new articles added to the 1880 edition of the Pharmacopoeia should include petrolatum, since, strictly speaking, the product was covered by U. S. patent 127,568, issued June 4, 1872, to Robert A. Chesebrough. The claim of this patent covers "The new article named by me 'Vaseline,' substantially as herein described," and the description in the body of the patent covers the manufacture, including the refining method, generally followed for many years by all petrolatum refiners.

According to the patent, Vaseline is made by distilling petroleum, preferably under vacuum, and filtering the distillation residue through bone-black, using a lubricating oil filtration process patented by Chesebrough in 1865,[2] and bone-black prepared according to the procedure covered by another patent issued to the pioneer petroleum technologist in 1866.[3] A series of products is obtained, varying from "pure white at the beginning, soon changing to a light straw, then to a dark straw, and then to a deep claret at the close of the operation. . . ."

The main advantage of the patent seems to have been the protection of the name Vaseline, which, incidentally, was formed from the German name for water (wasser) and the Greek term for oil, since Mr. Chesebrough believed that petroleum had been formed from hydrogen resulting from the decomposition of water in the earth and carbon in certain rocks.[4] This advantage has been limited to this country, since Vaseline, practically from the beginning of its use, has been considered as a generic name abroad.

While the name "Vaseline" could only be used by its inventor, the product itself was soon manufactured by others also, although the exact manufacturing methods were considered a secret. Thus, on November 18, 1874, Dr. A. W. Miller presented a paper[5] at the meeting of the Philadelphia College of Pharmacy entitled, "Cosmolin and Paraffin Oint-

COURTESY STANDARD OIL OF NEW JERSEY

Robert A. Chesebrough started an important new industry in 1872. Here is the record of its 90 years of development.

DRUGS AND COSMETICS

ment," in which he states: "According to the most trustworthy information which we were able to obtain, it is made by distilling crude petroleum. . . . The residuum is then subjected to still greater heat, and its vapor brought into contact with a jet of super-heated steam, for the purpose of expelling the last traces of light hydrocarbons. After this it is still further purified and deodorized by the action of hot animal charcoal." According to this author, cosmoline was sold in the form of "cerate, which remains firm at 95° (F.), as a jelly which is fluid at 85° and also a liquid which is still fluid at 32°." This paper was occasioned by the fact that cosmoline "appears to possess some merits and is certainly gaining favor with physicians." The pharmaceutical value of petrolatum was a new finding, since Chesebrough had mentioned in his patent the treatment of leather as the main use, while "the finest grade of vaseline" is recommended "as a pomade for the hair" and as "an excellent substance for glycerine cream for chapped hands. . . ." The American Pharmaceutical Association, apparently, was concerned with this new proprietary remedy, and Joseph L. Lemberger was charged in 1875 with an investigation of the product. He reported[6] on a visit to the plant of the manufacturers of Cosmoline, E. F. Houghton in Philadelphia, Penna., where he inspected the equipment for percolation of the raw stock through charcoal at 120° F.

Lemberger found that the most conspicuous application of petrolatum (cosmoline) was in the treatment of burns and scalds and declared it to be "without a superior, never failing when a timely application of the remedy was made, even in instances when so large a portion of the body was involved in injury as to leave a doubt with the physician whether any hope could be extended to the sufferer." Not astonishingly, the pharmaceutical use of petrolatum made considerable progress in this country, since it had the physical properties of the usual ointment bases like lard, but did not become rancid. However, its use abroad did not start until 1876. At that time (February 2, 1876), John Moss presented a paper[7] before the Pharmaceutical Society of Great Britain in which he stated that Vaseline was brought to his attention by Prof. Otis of New York and that he had not found any mention of the product in English, French or German pharmaceutical journals.

(*Continued on page 76*)

This discussion of in vitro *studies on water diffusion and uptake of human skin was presented at the Scientific Section meeting of the Toilet Goods Association in May, 1961, and published in the Proceedings, No. 35.*

SKIN MOISTURIZING

BY PETER FLESCH, M.D., Ph.D.
DEPARTMENT OF DERMATOLOGY, UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE

Hydration of the horny layer is essential to maintain the pliability and physical intactness of the skin surface. A vast number of cosmetic agents act by "moisturizing" the horny layer in order to ensure its softness and flexibility. Numerous articles and reviews have dealt with the movement of water to and from the skin surface; nevertheless, there are still large gaps in our knowledge and many of the factors involved in these processes have not been adequately investigated.

Water moves in the skin in two opposing directions: from the corium to the surface and from the environment into the skin. Hydration of the surface is therefore determined by the moisture lost and taken up by the skin. These movements of water are governed by different laws.

1. The loss of water from the skin is the outcome of active and passive processes. Active forces contributing to water diffusion are invisible sweating and keratinization.[1] The passive, physical part of diffusion is mainly influenced by the thickness and status of the epidermal barrier, a thin keratinized layer at the base of the stratum corneum, immediately above the granular layer. The major regulator of water diffusion is this metabolically inert, dead layer. For this reason, measurements of water loss carried out *in vivo* or *in vitro*, on excised skin, show good correlation.[2]

2. Water uptake into the skin from the environment is controlled by three factors: (a) the water content of the atmosphere,[3] or, in the case of fluids in contact with the skin, the osmotic concentration of the liquid;[4] (b) the water-holding ability of the skin surface; and (c) the thickness and physical condition of the epidermal barrier. Since the major portion of water taken up from the outside is bound by the horny layer,[4] it is possible to obtain good estimates of cutaneous water uptake not only by cumbersome *in vivo* techniques, but also by *in vitro* methods with the use of isolated horny layers.

One of the reasons for our insufficient knowledge about hydration of the skin surface has been the paucity of simple techniques for measuring cutaneous water exchange. Cosmetic chemists are much in need of assay methods to evaluate the usefulness of their preparations. It is the duty of basic dermatologic research to devise such methods.

In the present work we describe simple *in vitro* methods for measuring water loss and water uptake by human skin and the application of these methods for studying the effects of glycerin on these processes.

Diffusion of Water Through Excised Human Skin

Various techniques for measuring water loss through excised skin or isolated epidermis[2, 3, 5] require the building of special laboratory devices. To simplify these tests, the following modifications were introduced:

1. To avoid the construction of a special apparatus and thus make the test more universal, we sought to adapt some existing piece of laboratory equipment for the purpose of measuring transepidermal water diffusion.

2. The life of the epidermal membrane was prolonged by adding a bacteriostatic agent to the saline

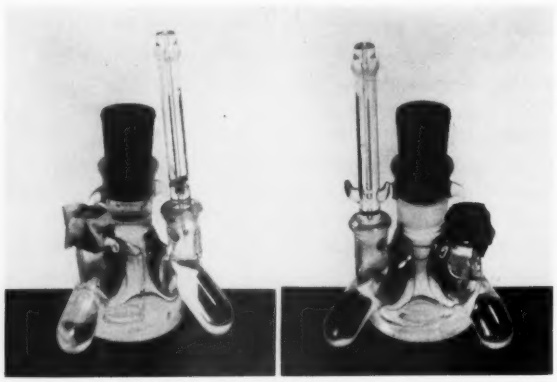


Figure 1. Warburg vessel with skin attached to side arm for measurement of percutaneous water diffusion. *Left*, small pieces of skin fastened over a perforated piece of adhesive tape (See Figure 2.) and the tape glued to the side of the flask. *Right*, pieces of skin large enough to be attached by rubber band or wire.

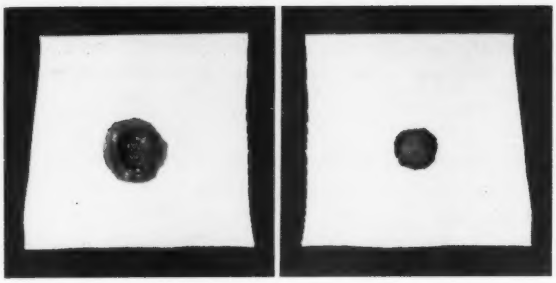


Figure 2. Fastening of skin specimens to adhesive tape. *Left*, the dermal side. *Right*, the epidermal side.

solution.

3. In addition to separated epidermis, we also used whole skin, as representing more physiologic conditions.

The apparatus used for measuring percutaneous water diffusion was a Warburg vessel with two side arms. The vessel was filled with physiologic saline; a crystal of thymol was added, to prevent bacterial growth. Over one of the side arms a piece of skin, trimmed free of subcutaneous fat, or heat separated epidermis was placed. When pieces were large enough, they were attached with a rubber band or wire (FIGURE 1 right); when they were small, they were fastened over a perforated piece of adhesive tape (FIGURE 2) and the tape was glued to the sides of the flask (FIGURE 1 left).

By pressing a rubber stopper into the central neck of the vessel, the fluid was raised to the height of the skin membrane. In the second, still open side arm a small amount of mineral oil was dropped; this arm then was closed with its capillary ground glass stopper in the open position. Through this manipulation the fluid rose into the capillary tube and the thin layer of mineral oil prevented its evaporation. When equilibrium was reached, the stopper was turned to the closed position. The only way in which water could evaporate from this system was through the skin.

Ideally, a room with controlled temperature and humidity would be best suited for carrying out these measurements. In its absence, a cool dark place was found to be adequate for the purpose of our experiments. Previously, it has been found that, within wide limits, atmospheric humidity has little effect on water diffusion through excised human skin.[3, 6]

The vessels were weighed daily, until the rates of fluid loss became constant for at least four consecutive days. Invariably the losses of water levelled off from the fourth or fifth day on. The large weight losses during the first few days are probably due to drying of the edges of the skin, which are not in contact with water or water vapor. In agreement with previous authors,[5, 7] we found that excised specimens of skin retained their usefulness for two weeks at least.

When the weight losses became equalized, 20 to 50 mg. glycerin was pipetted onto the piece of skin, so as to cover it completely, and the vessels were immediately reweighed. With subsequent daily weighings, the weight losses were again recorded for at least ten more days. In some experiments, the application of glycerin was repeated a few more times.

A few experiments were also done with squalene and mineral oil. In one series, clipped skin of guinea pigs was substituted for human skin.

Water losses through excised, surviving skin specimens were remarkably constant. When epidermis was used as a membrane, the smallest daily weight losses ranged from 3 to 10 mg.; these figures are in excellent agreement with data reported by previous authors.[5] Rather surprisingly, the minimal weight losses through *whole skin* were considerably larger, ranging from 12 to 30 mg. on the average. The most likely explanation for this discrepancy is that whole skin retracts over the vessel, while separated epidermis becomes stretched when placed over the opening, and thus presents a far smaller surface.

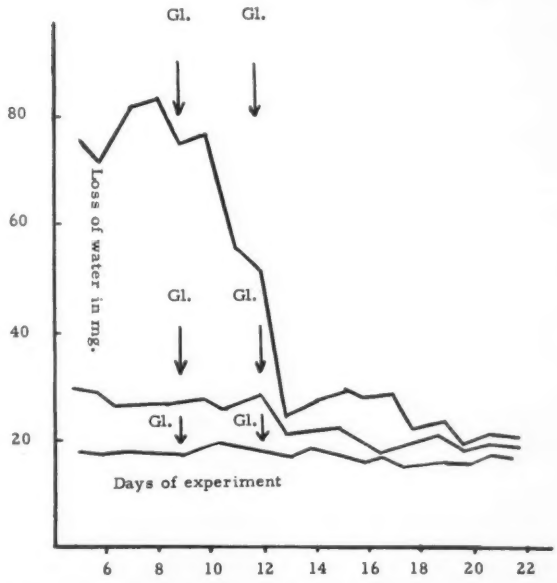


Figure 3. Losses of water through three different pieces of surviving skin, before and after the application of glycerin (Gl.).

The application of glycerin had a consistent effect on the transcutaneous diffusion of water. The effect was especially pronounced when the initial losses of water were above normal; in this case, glycerin invariably brought the values down to the normal level. When the losses in the untreated skin were in the range of minimal values, glycerin sometimes had no effect on the evaporation of water; at other times, glycerin reduced it considerably (FIGURES 3 and 4).

Two controls were set up. One control vessel had a polyethylene plastic membrane, over which the same amount of glycerin was placed as over the skin specimens. By daily weighings of this vessel, it could be ascertained that under the conditions of the experi-

ments, glycerin did not take up measurable quantities of water from the atmosphere, because the weight of the vessel remained constant.

Another control vessel contained physiologic saline; its side arm, which in the main vessels had the skin as a membrane, was left open. Through daily weighings of this vessel, it was possible to identify the occasional days with unusual atmospheric conditions, leading to abnormally high or low readings. Readings made on these days were disregarded. This control vessel is unnecessary when the weighings are done in an environment with temperature and humidity control.

Weight losses after the application of squalene or mineral oil were similar to those observed after glycerin. In six measurements, glycerin had a similar effect on water loss through guinea pig skin as on human skin. The initial value of an average daily water loss of 53 mg. was decreased to an average of 28 mg. after the application of glycerin. Squalene, perhydrosqualene (both from Robeco Chemicals, Inc.) and mineral oil also lowered the evaporation of water through excised guinea pig skin.

Effect of Glycerin upon Absorption of Water by Human Skin

Most of the water absorbed by human skin is taken up by the horny layer.[4] To measure the effect of glycerin on this water uptake, the following test was devised:

Pulverized and defatted horny layers (callus and psoriatic scales) were dried to constant weight, mixed with a known amount of glycerin and placed in a closed jar at 100 per cent humidity and 37° C. Control samples consisted of glycerin alone and callus alone. These three samples were weighed daily to estimate their water uptake. TABLE 1 shows some of the results.

TABLE 1
Effect of glycerin, mineral oil and squalene upon water uptake of human horny layers

Exp. No.	Duration of experiment	Types of scale	Water uptake in mg./100 mg. scale			
			Scales	Scales+ glycerin*	Scales+ Min. oil	Scales+ squalene
1	8 days	Powdered callus	44	221	36	47
2	5 days	Powdered callus	42	79	32	35
3	2 days	Whole callus	34	126	—	—
4	2 days	Powdered psoriatic	16	92	—	—
5	3 days	Powdered psoriatic	15	117	—	—
6	3 days	Powdered psoriatic	9	47	—	—

*Figures obtained after subtraction of water uptake by glycerin.

A typical experiment (No. 1) is analyzed below. The actual findings were as follows:

1. 200 mg. callus absorbed 88 mg. water.
2. 465 mg. glycerin took up 593 mg. water.
3. 200 mg. callus + 383 mg. glycerin took up 930 mg. water.

The theoretical water uptake under (3) would be: 88 mg. (share of 200 mg. callus) + 488 mg. (share of 383 mg. glycerin) = 576 mg. water. The actual uptake, 930 mg., is considerably higher than the calculated amount. The actual share of callus under (3) is therefore 930 mg. − 488 mg. = 442 mg. or 221 mg./100 mg. callus. The effect of glycerin upon the water uptake of callus is therefore one of potentiation, rather than summation.

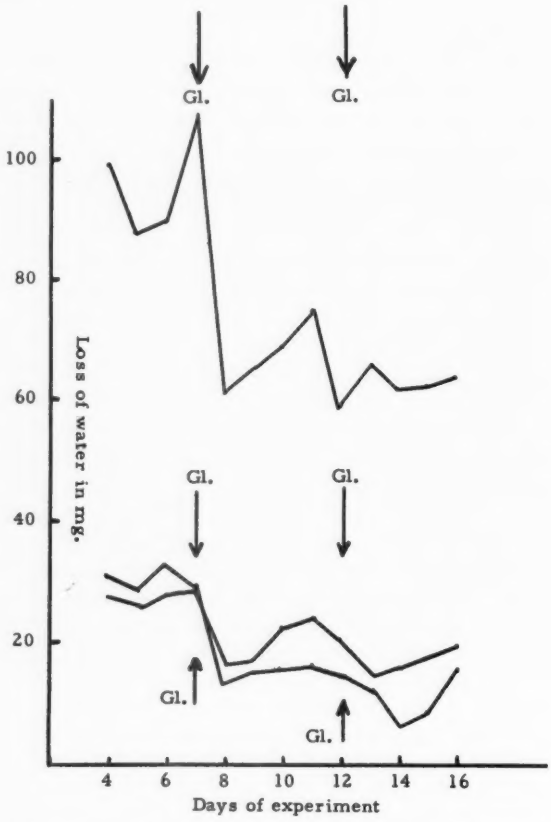


Figure 4. Losses of water through three different pieces of surviving skin, before and after the application of glycerin (Gl.).

The possibility was considered that the observed potentiation was due to pulverization and consequent increase of the surface of callus. However, whole callus displayed the same phenomenon (TABLE 1, Exp. 3), while other powders, like zinc oxide or powdered silk, when mixed with glycerin, had no potentiating effect on the water uptake of the mixture.

The increased water uptake of the glycerin-callus system is due to the keratinous (insoluble) components of the horny layer and not to the soluble

(Continued on page 82)

Packaging and Selling

FOAMED PLASTICS FOR SHIPPING

Foamed plastics are becoming more and more important in packaging, especially for the shipping economy of their light weight, as well as for their strength. An additional advantage is that shown here —a container for shipping perishables by air to any point in the United States, Europe or the Pacific. Only one icing is needed in this foam plastic container for blood, plasma and temperature-critical biologicals such as toxins and vaccines, by Archer-Reed Company of Dearborn, Michigan.

Previous containers, usually chests of metal or metal and wood, weighed about 75 pounds, and had to be re-iced every 12 hours. They held between 12 and 20 units of plasma or biologicals.

The new container shown above holds one unit plus one pound of ice, and weighs three pounds altogether. Molded by Plasteel, Inc., of Inkster, Michigan, from Dylite expandable polystyrene, a product of the Plastics Division, Koppers Company, Inc., it is available in pint or quart sizes.

In packing, the wet or dry ice is placed on the bottom of the container and a fitted, plastic foam disc placed over it; the medical item is put in, covered by the second disc, and the closely fitting top is put on. The entire container is then placed in a cardboard box and sealed.

BOTTLE TALK BY CARR-LOWREY

Miss Opal has found her soul mate. And no wonder, for they were made for each other. This pair performs wonderfully well in companion packs, or as a full-line family. The #200 bottle is available clear, frosted, or in sprayed ceramic color. The #150 jar is Carr-Lowrey's new, lightweight footed opal. Both come in all popular sizes, both available plain or decorated to your order. Both constantly prove that glass stimulates sales.

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Why the Doldrums in Medical Aerosols?

BY PAUL WEST

PUBLIC RELATIONS CONSULTANT: PEERLESS TUBE COMPANY

Aerosol packaging for drugs and pharmaceuticals, has grown from slightly over 800,000 units eight years ago to just just under 12 million units in 1960. The latter "actual count" figure should be adjusted upward by two million, according to the Chemical Specialties Manufacturers Association.

DuPont's projection, made some years ago, places 1968 medical aerosol unit volume at 33.3 million, but this has already been shown conservative by actual CSMA "counts" for the last two years. In any event, if aerosols are to win their logical place, for topical packaging alone, then this projection could easily be doubled or tripled. These factors, combined with a projected tripling of major ethical products by 1975, pointed to the advisability of a survey of pharmaceutical firms on the subject.

Peerless Tube Company, which last year experienced a substantial sales increase in its medical aerosol container volume, requested the Packaging Institute to conduct a survey of its members as to their opinions on current medical aerosol packaging and on the potential for aerosol packaged products. The company believes that medical aerosols are only emerging from their infancy and, when they really catch on, their rate of growth should be phenominal; that probably no other type of product can be so much enhanced by aerosols; that there is no other area in which the addition of aerosol packaging to a given or reformulated product so truly creates a "new" product; and, finally, that prestige medical aerosols will result in the lifting of sales of other products.

The ten-page medical aerosol survey was thoroughly reviewed by several of the Packaging Institute's technical committees and sent last May to a list of approximately 100 pharmaceutical firms and also to a wide variety of aerosol industry firms.

The tabulation, just completed, was made on the basis of 23 replies, 18 from pharmaceutical firms, the others from knowledgable propellant manufacturers and custom fillers. This includes responses from 13 of the major pharmaceutical prdoucers and covers producers of most of the total medical aerosol volume.

The results of this survey, Peerless has concluded, show that both the pharmaceutical industry and the general public need far more aerosol information. The tabulation also indicates widely divergent views on aerosol components; complete agreement on the appropriateness of present medical aerosol products but considerable disagreement on potential aerosol application; and near unanimity in the view that insufficient selling of the aerosol concept is being directed at the consumer. The relatively small number of replies, although they cover almost all major firms with medical aerosols, indicates the small number of firms with sufficient experience to make considered statements.

The survey was composed of two parts, one on aerosol components, excepting the broad subject of

(*Continued on page 60*)

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PLASTICS IN PACKAGING

A brief review of the Society of the Plastics Industry conference and exposition.

Plastics in Packaging was the subject of a three-hour session during last month's three-day nineth Annual Conference of The Society of the Plastics Industry in New York. It was attended by more than 500, most of whom, along with hundreds more, also visited the concurrent National Plastics Exposition at the Coliseum, where both plastics materials and machines were displayed.

In his opening remarks at the conference, Moderator Lloyd Stouffer, who is editor of *Modern Packaging*, said that plastics in the field of packaging have reached a new stage: Paper, metal and glass manufacturers are no longer fighting plastics, they are embracing them. The most significant form this takes is the use of plastics in combination with other materials, through coatings, laminations, linings, and fitments of plastics.

The biggest single factor in the growth of plastics in packaging has been the steady reduction of the prices of plastics raw materials, while, simultaneously, the prices of all other packaging materials have been going just as steadily upward.

A relatively new concept for plastics, and one which is fundamental to their success in packaging, is the single-use, throw-away package.

Donald R. Mahaney, market specialist for Monsanto Chemical Company, presented a "Forward Look for Plastics in Packaging."

In the $6.6-billion consumer packaging market, plastics have as yet penetrated by only a little more than 4 per cent, to the amount of $280,000,000 in 1959. By 1965, he predicted, plastics volume would surpass $800,000,000, doubling its present share of the consumer packaging market. This growth is expected to occur in the fields of unsupported flexible plastic films, plastic containers and closures, and combinations of plastics with other materials.

Since 1950, paperboard prices have risen 150 per cent and glass containers 132 per cent, whereas polyethylene and polystyrene, the two major plastic packaging raw materials, are now selling at 60 per cent of their 1950 prices.

However, Mr. Mahaney said, price declines have outpaced production and marketing efficiencies. The resulting cost-price squeeze has forced some raw-material suppliers to cut back their programs aimed at developing new materials and markets, to the long-term loss of the entire plastics industry. Converters require adequate returns to improve molding and forming techniques, and to expand their capacities, in order to capitalize on these new marketing opportunities. Essential to the projected growth are satisfactory profits at all levels of manufacture and distribution.

In discussing "Flexible Plastic Packaging Film," Florren E. Long, manager of product development and research, Flexible Packaging Div., Continental Can Co., pointed especially to the need to create and maintain proper permeability levels. Since products vary considerably in their sensitivity to atmosphere exposure, they require varying levels of permeability.

Combinations of various materials, for example polyethylene—a good moisture barrier but poor gas barrier—coated with polyvinylidene chloride to produce a sheet with good moisture and gas barrier properties, are increasingly used. Each combination must be developed for the specific properties required for a given product.

Vacuum aluminum metalization, generally considered more decorative than protective, is capable, in combination with subsequent laminations, of reducing permeability by one-fifth or more.

The newer films have interesting properties but still need conversion improvement, according to Mr. Long.

Alvin J. Sanders, supervisor, package construction, Household Products Div., Colgate-Palmolive Co., in speaking of "Plastic Bottles, Tubes and Other Merchandising Packages," had this to say: A survey by his firm's market research department, in which one product packed in identically shaped containers—one all plastic, the other a composite can—disclosed an overwhelming consumer preference for the product in the pastic container, a finding attributable to the package alone. The "feel and squeezability" of the plastic container were reported to be very desirable qualities.

At the Exposition, unfortunately, little displayed was specifically for drug or cosmetic packaging, although some developments are applicable. •

Packaging and Selling

The other day we were talking to a buyer in this trade. This man heads a department which purchases each year several million dollars worth of packages and packaging materials.

This buyer has made a brilliant company record, not only as a skillful buyer, but as a very imaginative one. He has been particularly successful in organizing the packaging people he buys from to work closely with his company in creative development and in a flow of packaging ideas that has not only kept the company right up in front of the packaging procession, but in a number of cases, out front as a leader.

We asked this buyer what he thought of the recent packaging show. "Frankly," he said, "we were pretty bored with the whole thing. In previous years we went to the packaging show expecting a very stimulating time on the floor from a large number of companies highly competitive with each other, eager to please, full of ideas and suggestions.

"This time," he said, "I looked down one aisle and there was a great big corporation, the product of several mergers, and I saw a line of booths held by the different divisions of this corporation. I looked down another aisle," he said, "and there was another big corporation with separate displays by several divisions. By the time I looked down a third aisle," he said, "and saw still another corporation with four or five booths, I had decided that the flow of ideas that come from a lot of vigorous competition was not to be found in this particular place.

"Our company," he said, "anticipated a great many wonderful things in the packaging field, partly arising from the dynamic competition of tin, aluminum, glass, plastics and paper. These were basic industries with basic materials, fighting for position in the packaging industry, supremely alert to new applications of their material and constantly merchandising a flow of ideas very stimulating to the packaging department of companies like ours.

"Now, we find all or most of these materials as substantial divisions of different big companies and something seems to be going out of the packaging industry.

"I do not say that if we have a complaint to make about tin, the salesmen shrug their shoulders and say, why don't you try glass, plastics or aluminum. But the fight is really going out of these basic materials, and as long as they get the business in some division, there does not seem to be too much interest or excitement upstairs among top management.

"Furthermore," he added, "I do not find the divisional salesmen of these big corporations have anywhere near the knowledge of their product, of the entire packaging field or anywhere near the stimulating, absorbed interest in good customers that I used to find from the medium-sized companies, where our substantial purchases were a very important factor in their success."

We are merely quoting the words of one buyer. We do not necessarily say that he is 100 per cent right. Nevertheless, his mind is working in a direction that we sense is developing in other parts of the trade.

One of the southwestern supermarkets thinks it has gone a long way in cutting to a minimum the shoplifting of health and beauty aids.

This is a department in a grocery store that is particularly vulnerable to theft because most of the small packages are easily slipped into a purse. Such shop-lifting has severely limited experimentation in many stores in the adding of cosmetic products such as lipstick and nail enamel, which are not now distributed in grocery stores.

The new prevention is a closed-circuit television system focused on this particular department and in full view of the customers.

There is no report on how well the device really works. It seems, however, that the psychological effect of seeing this television recording is in itself enough nearly to eliminate shop lifting.

If you would like an absolutely pure factory, more antiseptic than a hospital operating room, all you need to do is to follow the program of the Sperry Gyroscope Company's plant for navigation instruments for Polaris submarines.

Here the temperature never varies more than half a degree; its humidity never more than 5 per cent. If the atmosphere of the earth's surface were as clear as that of these connecting laboratories, it is estimated that people could see 900 miles.

We were given the fortunate opportunity, a little while ago, of looking at the sales figures for three perfumes, colognes, and spray mists for each of the years from 1955 through 1959.

Among the many extremely interesting aspects of this analysis was the steady, substantial growth of the aerosol mist, with no bad effect whatsoever on the sales of perfume or cologne.

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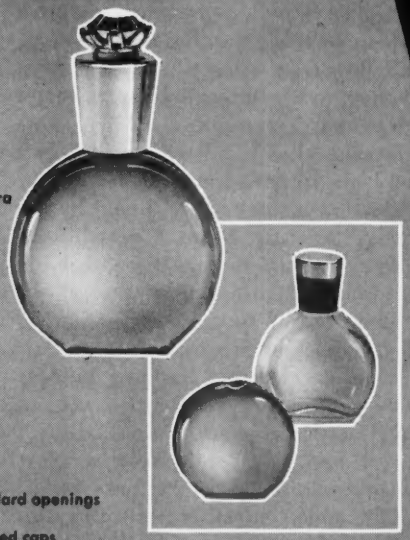

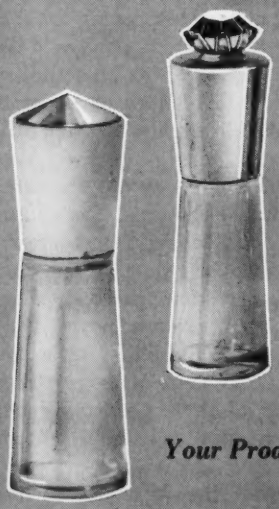

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In 1955 the ratio of cologne to perfume sales was about 60 per cent to 40 per cent. This was substantially higher perfume sales than the rest of the perfume industry and equalled, we think, by not more than two other perfume companies. It is due to the emphasis in selling and advertising, and particularly to promotions on the perfume as well as to some excellent perfume promotions on gift days other than Christmas.

However, the balance in 1959 was almost one-third each for perfume, cologne, and the aerosol spray.

Although last year was very profitable for the cosmetic and perfume industry, approaching practically boom proportions for a few companies in some products, there was a stumbling block toward the end of the year for what might be called the industry's number one basic product, lipstick.

The block was the muddle and hesitation that came about when the FDA sprang its new program for cosmetic colors.

We understand that a leading lipstick maker decided that this was it, and immediately went into a crash program in the laboratory to come up with colors acceptable to the new requirements of the government. Then, when a stockholder at the company's annual meeting accused the firm of selling poisoned materials, it immediately put these new lipsticks on the market.

Unfortunately for the company, the consumers did not particularly like these new safe shades; moreover, the government decided to give the industry substantial leeway to do the necessary research on other colors.

Consequently, this leading company, for the first time in its history, lost business on its lipstick division—according to some reports as much as 20 per cent.

Another cosmetic company with a medium position in lipsticks more or less went through the same procedure in beating the industry to the public with so-called government-approved colors or safe colors, and were properly trounced for jumping the gun.

The other people in the lipstick business report the best fall they have ever had, and one leading treatment house that specialized in lipstick promotions during this fall has gone to town in a big way with this basic product.

A San Francisco industrial and package designer, Walter Landor and Associates, believes that one-shot packaging, especially in dispenser form, has only just begun to meet the opportunities and demands of modern living. He cites as an example the warm consumer acceptance of individual cereal containers, small pouches of powdered coffee cream, and capsuled cigarette lighter fluid.

Still largely unexploited, in his opinion, are cosmetics, toiletries, and perfumes.

To say the least, Smith, Kline & French, Inc., the wholesale subsidiary of Smith, Kline & French Laboratories, is doing some pioneering work in marketing. Whether this development should be classified with food stamps, which the food trade is deeply involved in, or with the premium business, we would not know.

The plan, as we understand it, is to give druggists who buy SK&F products an opportunity to invest in a mutual fund. As a benefit of this plan, a druggist can earmark for investment in mutual fund shares the 2 per cent discount that SK&F gives to payment of bills within ten days.

SK&F is said to pay the brokerage commission on the purchase of the shares and the administration fees charged by the bank.

Since the fund involved is one of the largest and the best, the Wellington Fund, this is obviously an easy way for a druggist to invest without having to pay the normal sales commission for mutual funds, which runs about 8 per cent of value.

Nobody knows what the market is going to do in the near or distant future. Whether SK&F likes it or not, they are going to be involved in the minds of many of their customers with an investment recommendation.

Let's hope that this country is forever prosperous!

We do not know where this came from, but we found a brief clipping on our desk which reads as follows:

"The programs at Town Hall now bear the message 'If your coughing causes you distress, annoys the artists and our patrons, please let us help you. Kindly signal an usher and you will be provided with a delicious lemon-flavored Vicks Vitamin C Cough Drop.' "

This strikes us as an excellent commercial.

Advertisers had better make up their minds that the Federal Trade Commissioners mean what they say when they state that there is going to be a hard-hitting program of law enforcement on false and misleading advertising claims.

Paul Rand Dixon, FTC chairman, stated in a talk at the Advertising Federation of America that "Both advertiser and advertising agency know perfectly well when they are engaging in illegal brinkmanship in exaggerating claims for a product or falsely disparaging competitive products."

Another quote from his speech: "Plenty more are going to get caught than escape the FTC net."

Here is some advice from the president of a leading chemical company. "With everybody taking in everybody's washing, I wonder if the vogue to diversify hasn't been carried to extremes and if we aren't ready for a return to the era of 'shoemaker, stick to your last.' "

In spite of the mixed metaphor, we think this is a very good point. •

NEWS IN PACKAGING...

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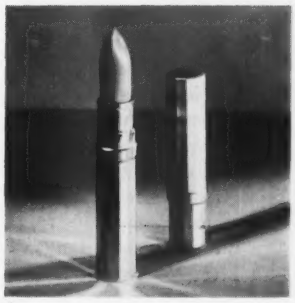

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1. Glenbrook Laboratories, division of Sterling Drug Inc., has introduced Z.B.T. Baby Lotion as a companion product to Z.B.T. Baby Powder, in a pink and blue plastic squeeze bottle with a one-hand action cap.

2. Creme Solaire, a new sun creme containing a beauty treatment, by **Cosmetiques Biotherm,** comes in a 3½ oz. hermetically-sealed, blue and white tube. To break the seal, the cap is screwed tighter, then unscrewed.

3. Strasenburgh Laboratories has recently revitalized its packaging by using a new corporate identity symbol centered around a modern "S". New colors are gray-blue and buff on a white background, and brand names are individualized with different typefaces.

4. Cutex S'Lipstick by **Northam Warren** offers a new case in which a shield slips down to uncover the lipstick. No twisting or push-up action is necessary.

5. An 18mm. trigger tip aluminum package by V.C.A., Inc., with a metered valve, eliminates the use of an overcap, but still protects against accidental discharge. The aluminum ¼ oz. tube is adaptable for screening and other decorations; the linear polyethylene actuator button and nozzle insert can be molded in any color.

6. Counter display introducing **Yardley's** new fragrance, Flair, shows toilet water, perfume, bath emollient, spray mist, and dusting powder. The items are coordinated with a color scheme of light blue, white and gold.

Packaging Terms

The Packaging Institute, 342 Madison Avenue, N.Y.C. 17, has issued a Third Edition of its "Glossary of Packaging Terms," which consists of standard definitions of trade terms commonly used in packaging. The new edition is $3.50, printed on loose-leaf paper (reviewed, p. 122 of this issue).

Polyethylene Resin

A new polyethylene resin that provides blown tubing or cast film with excellent clarity and high strength has been introduced by U. S. Industrial Chemicals Company. Petrothene 232 is described as having excellent heat-seal characteristics, good take-off rates, and handling ease on bagmaking and packaging equipment. Electronic treating of the film for optimum printability is possible at commercial take-off rates.

New National Starch Products

National Starch and Chemical Corporation has introduced a new, transparent bottle-labeling adhesive, which is a modification of the company's Chemtite. The transparent characteristic of Clearchem eliminates globs and smears that result from adhesive squeeze out or slip during the labeling process. Both ice-proof and water resistant, it spreads evenly to a thin film at high machine speeds and grips any kind of label stock. It has good pot stability and won't drip from picker plates.

A two-part adhesive system designed for transparent pouch laminations, combines Resyn 76-4770 and 76-4771, and is particularly suitable for laminations incorporating polyethylene film. It provides good initial tensile strength off the machine to resist delamination under stress, and develops increased tensile with age as the system cures. This is in direct contrast with most thermosetting adhesives whereby tensile strength generally decreases as ultimate cure is approached. Bonds produced by the new system have shown excellent impact and static load resistance. The system will not gel for two days or more under proper conditions of use. It also has a low odor level.

Corrugated Packaging

Alton Box Board Company has introduced a new packaging for drugs that provides both multi-color halftone printing for sharp merchandising and also protective strength for longer shelf life. Elite Flute, described as folding-corrugated, is said to give corrugated material the same quality, fine-screen printability of light folding cartons. It is 1/16 of an inch thick, and can be printed on letterpress and rotogravure equipment. •

NEWS and VIEWS

BY TED KLEIN PUBLIC RELATIONS DIRECTOR

Values

I work for a company that is primarily engaged in creating medical advertising. For the past 12 years or so, advertising and public relations have been my way of making a living. Therefore, when advertising in general and medical advertising in particular comes under attack, my personal concern should be understandable.

The Federal Trade Commission has been making it a point to direct the spotlight of publicity, and then government intervention, at some of the advertising agencies and their clients in fields allied with or a part of the drug industry. This action is due in part to a rather distorted idea, not widely held, that "you can fool most of the people most of the time" when it comes to getting them to buy a product. This rarely, if ever, has proved true.

Now, a democracy is inherently weaker in many respects than a dictatorship. A facade of this weakness is being demonstrated in the race we of the West are in with the Soviets for getting men into space. But along with our weaknesses there are tremendous strengths. These strengths, I believe, are our rights as free people. The individual and his freedom to act lawfully in any way so long as he does not harm other individuals is the cornerstone of our wasteful, inefficient, and glorious system. When controls are set up which restrict rights, not in the name of law, but in the name of individuals *who themselves decide what is right for the public*, then I think it is time for all of us to cry out against these critics.

The present critics of advertising have stated that we in the ad industry are "wastemakers," contributing to the myth of the "affluent society." They feel that our efforts make for duplication in product, create false need, and encourage spending for things new to replace things old, not because the old is no longer any good, but just because it is old.

In the drug industry we in advertising are accused of making physicians use products that are not really needed, for patients who are not really sick. It has been suggested that millions of dollars could be saved if all the products of the U. S. pharmaceutical industry could be screened and only the unique ones made available under their chemical names. It has been suggested further that all advertising be changed to describe only these basic drugs.

Why not make only one kind of car? And one kind of breakfast cereal? And one basic kind of clothing? Why not? Well in Communist China this is the case. Would you like to try the system? Not me!

I believe that advertising is a fundamental reason for our high standard of living. I believe that medical advertising (the kind we create in our agency) is *one* of the reasons we have the highest health standards in the world today. I think that advertising is part of our free way of life, and that, if it were controlled rigidly as some of our critics suggest, all of us would suffer.

Within a block of our office in Manhattan there must be 100 restaurants. Why? One large building with a basic menu could serve all the eating needs of the neighborhood. This would undoubtedly save the eating public of the area a great deal of money. What about our many food stores? Why not one big store for an entire city? Sound foolish? These and many other consolidations of consumer services have taken place in some communist countries . . . countries where the entire economy from the cradle to the grave is planned. There is no advertising at all in Russia today, except carefully directed propaganda from the one big business in charge, the government.

Not for me, the abolition or even the control of advertising. Not for me, the control of what is manufactured and what it will look like and cost.

There is no doubt in my mind that advertising is a basic part of our way of life. My view is admittedly biased, but I believe that tampering with advertising and then the products that are advertised—restricting the kinds of products to be marketed—would violate a fundamental democratic right. To our critics I say there is reason to ferret out the bad actors in the profession. We in it ought to do this ourselves. However, once a bad law is passed (the Volstead Act is a good example), it can take years to get it repealed; and the evils that come with this poor legislation often live forever.

If those planning our downfall want to find a basic way to subvert our system, then destroying advertising and with it the way our industry sells products will be a first step. I know of no more basic part of the democratic way of life than the freedom to make products and then try to sell them. Advertising is a basic tool of the system. Tampering with it can only weaken that system.

SK&F's Magazines

American physicians are now receiving two new publications from Smith, Kline & French Laboratories. *Consultant*, a 48-page, 6" x 9" monthly magazine, is designed, according to Tom Rauch, SK&F vice-president for marketing, to disseminate "important and helpful medical information—which can be applied in everyday practice—in a highly readable and easily digested style."

Another SK&F publication, *Patient's Digest*, (1,800,000 copies) is being distributed to patients via their physicians' waiting rooms. A boiled down version of the publication (10,000,000 copies) will be distributed to 20,000 or so retail pharmacists.

After going through the first copy of each of these publications, I feel they undoubtedly meet an important need. They are filled with facts, and, in the case of the consumer book, there is very little commercial tieup with the sponsoring pharmaceutical firm. It should be a very successful PR medium.

Consultant has several short medical articles spaced among quite a few ads. In essence, it is another medical magazine of the house organ variety. SK&F has cut down the amount of journal advertising they are placing in medical journals since publishing *Consultant*. It seems to me that there was less need for this publication than for the consumer-oriented *Patient's Digest*. It would be interesting to know if a readership study for both is contemplated, and, if so, what the doctor and the patient are getting from the magazines.

New Products

PHARMACEUTICALS

Probital (Searle) is a gastrointestinal antispasmodic containing 7.5 mg. propantheline bromide and 15 mg. phenobarbital in each compression-coated tablet. It is supplied in bottles of 100 and 500 tablets.

Elase (Parke, Davis) is a combination of the two enzymes fibrinolysin and desoxyribonuclease in an ointment or as a dry soluble material to aid wound healing.

Matco Analgesic Tablets (Matco) contain in each tablet 3 grains of para acetaminophenol, 3 grains of salicylamide, and ½ grain of caffeine, sold in bottles containing 30 tablets.

Cantharone (Ingram) is a 0.7 per cent solution of cantharidin in a special vehicle containing acetone, flexible collodion and ethyl cellulose, for the removal of warts.

Naclex (Robins) is benzthiazide, as 50 mg. tablets, a diuretic, available in bottles of 100 and 500.

Enduron (Abbott) is an oral diuretic, methyclothiazide, supplied as 2.5 and 5.0 mg. tablets in bottles of 100 and 1000.

Steri-Spray (Mennen) is an aerosol antiseptic that, when sprayed on a wound, relieves pain and provides a transparent plastic coating over the affected area. It is effective for use on cuts, sunburn, poison ivy and poison oak, minor burns, and insect bites. An important feature is that the fingers never touch the skin. It comes in a 4½-ounce can.

Bronkometer, Bronkospray (Breon) are antiasthmatic agents, one supplied with a measured-dose valve and oral nebulizer, the other used with a conventional neublizer. Both products contain the same ingredients of Dilabron, phenylephrine, and thenyldiamine, but in different concentrations; and both are supplied in bottles of 10 cc.

Domoform (Dome Chemicals) cream contains 3 per cent iodochlorhydroxyquin in the Acid Mantle vehicle while the ointment contains 3 per cent iodochlorhydroxquin in the Domolene ointment base. These preparations are indicated in the treatment of infections or eczematous conditions; they are available in one ounce tubes and one pound jars. Domolene-HC is an ointment containing 10 mg./gram of hydrocortisone in a special greasy base and is supplied as ½ oz., 1 oz., and 2 oz. tubes. Domoform-HC cream or lotion contains 5 mg. per gram of micronized hydrocortisone alcohol and 3 per cent iodochlorhydroxyquin in the acid mantle vehicle and is available in ½ and 1 oz. tubes of the cream or a ½ oz. bottle of lotion. The Domoform-HC Forte is the same product with 10 mg. per gram of hydrocortisone.

Lidamycin Creme (Dome Chemicals) consists of 5 mg. per gram of neomycin sulfate added to Lida-Mantle Creme 3 per cent formulation. It is an anti-infective topical anesthetic available in ½ and 1 oz. tubes and 1 lb. jars.

Desenex (Wallace & Tiernan) is a medicated foot powder that comes a lavender, white, and green 6-ounce aerosol can.

Femette (Lanpar) is a vaginal antiseptic and feminine hygiene preparation in an aerosol dispenser. It is a soft, white, absorbable foam with active ingredients of oxyquinoline sulfate, sodium lauryl sulfate, boric acid, hexachlorophene, and glycerol in a bland pharmaceutical base. Femette is a spermatocide in addition to its deodorant, fungicidal, and bactericidal effects, and comes with a douche pipe and carrying pouch.

Unguentine First-Aid Spray (Norich) is a liquid antiseptic pain reliever for treatment of cuts, scrapes, and burns. It comes in a 2¾-ounce plastic squeeze bottle in the shape of a miniature fire extinguisher.

Cough and Cold Syrup (Matco) contains dextromethorphan hydrobromide for coughs, congestion of the throat, chest and bronchial passages, and general discomfort due to colds and hay fever. In addition to its antitussive action, the syrup is an expectorant, sedative, and antihistamine.

Cotazym-B (Organon) is a comprehensive digestant containing lipancreatin, which provides the most potent lipase activity available for the digestion of fat. It also provides enzyme potency for the digestion of starch, protein and cellulose. It is indicated for the symptomatic relief of various gastrointestinal disturbances. In bottles of 24 and 48 tablets.

Plegine (Ayerst) is an anorexiant that suppresses the appetite, with a paucity of side effects and a virtual absence of CNS or cardiovascular complications. It is available in scored tablets, with 35 mg. of phendimetrazine bitartrate in each, in bottles of 100 and 1000.

Mylaxen (Irwin, Neisler) is a selective plasma cholinesterase inhibitor that, when used together with small doses of the muscle relaxant succinylcholine, provides an evenly sustained surgical plane of muscular relaxation, with less risk of untoward effects. Mylaxen is a bisquaternary ammonium compound, hexafluorenium bromide, in a white, crystalline, stable water-soluble substance It is available in 10 cc. multiple-dose vials, each containing 20 mg. of hexafluorenium bromide.

Parafon Forte (McNeil) provides relief of painful musculoskeletal spasm through the actions of Paraflex, a muscle relaxant, and Tylenol, a nonsalicylate analgesic. Each scored light green tablet contains Paraflex chlorzoxazone 250 mg. and Tylenol acetaminophen 300 mg. Supplied in bottles of 50.

Lehn & Fink Medi-Quik is a combination antiseptic and topical aerosol spray said to be nontoxic, and recommended for cuts, scrapes, burns, rashes, sunburn, and the like. It comes in a 3-ounce aerosol can.

Buccal amylase (Rystan) is a new buccal enzyme in tablet form, to be released for the treatment of traumatic athletic injuries.

Antioxidant (Halby) DL-TDP is β,β^1-dilaurylthiodipropionate, an antioxidant and preservative for edible materials, soap, polypropylene, and an additive for lubricants. The compound is being offered by Halby Products Co., Inc., Wilmington 99, Del.

Avazyme (Wampole) is an oral anti-inflammatory enzyme preparation containing only crystalline chymotrypsin. It is in enteric-coated tablets, each with a proteolytic activity of 50,000 Wampole Units (approx. 20 mg.) in bottles of 48.

Dimocillin (Squibb) is a synthetic antibiotic with effectiveness against resistant staphylococcal infections. It is supplied in powder form, in a vial providing one gram sodium dimethoxyphenyl penicillin.

Analexin Syrup (Irwin, Neisler) combines the antipyretic, anti-inflammatory action of salicylate with the pain relieving properties of Phenyramidol and is particularly effective in relieving the pain of otitis media, teething, myesitis, muscular rheumatism, toothache, neuralgia, strains and sprains, pain associated with spastic conditions, injuries, trauma and contusions. Each 5 cc. of Analexin Syrup contains 100 mg. of Phenyramidol Salicylate, is emerald green, mint-flavored. In bottles of one pint.

Balmex Medicated Lotion (Macsil) is a safe, nontoxic product containing no mineral oil, which gives relief from diaper rash and other skin irritations. It contains four fluid ounces comprised of lano-sil, a non-sensitizing, dewaxed, moisturizing fraction of lanolin; hexachlorophene; allantoin; specially purified balsam Peru; and silicone.

Bamadex Sequels (Lederle) is a sustained-release capsule to be used as an adjunct to diet in the control of obesity. It contains 15 mg. of dextroamphetamine sulfate and 300 mg. of meprobamate, and is sold in bottles of 30.

Mylicon (Stuart), for gastric distress due to gas entrapment, comes in tablets containing 40 mg. methylpolysiloxane, a silicone, per tablet; in drops containing 40 mg. methylpolysiloxane per 0.6 cc. It is supplied in bottles of 100 and 500 white, scored, chewable tablets, and dropper bottles of 30 cc. pink, pleasant tasting liquid.

Stuartinic (Stuart) is a hematinic for iron deficiency anemias containing 100 mg. of iron, 100 mg. of desiccated liver, 50 mg. of vitamin C, and vitamin B complex. Comes in bottles of 100 and 500 small, yellow capsule-shaped tablets.

Mucoplex (Stuart) is nutritional therapy for abnormalities of the oral mucosa containing 750 mg. heprofax, 5 mcg. vitamin B_{12}, and 1.5 mg. vitamin B_2, supplied in bottles of 100 and 500 brown, capsule-shaped tablets.

Bejex (Abbott) is injectable B complex vitamins with vitamin C. It comes in 5 ml. single-dose Univial Container (packed in 25's).

Synalar (Syntex) is a new, synthetic anti-inflammatory corti-costeroid with 40 times the topical potency of hydrocortisone, indicated for topical therapy of a variety of inflammatory dermatoses. It comes in 15 gm. collapsible tubes containing 0.025 per cent fluocinolone acetonide in a lyophilic base.

Quimotrase (Smith, Miller & Patch) is alpha-chymotrypsin, developed for enzymatic zonulolysis in cataract surgery, and is available in 10 cc. vials with diluent.

Sporostacin (Ortho), in lotion form, is for fungal infections of the skin in such regions as the axilla, groin, genitocrural fold, buccal mucosa, diaper area, scrotum, perianal and generally any involved dermatologic areas; in solution form for fungal infections of the nails and paronychia. The lotion contains chlordantoin and benzalkonium chloride compounded with glyceryl monostearate, phosphoric acid, lanolin, cetyl alcohol, cholesterol, polyethylene glycol monostearate, propylparaben, catanac, methylparaben and water. The solution contains chlordantoin and benzalkonium chloride compounded with isopropanol and water. It is available in bottles of 60 cc. lotion and 30 cc. solution.

Elavil (Merck), amitriptyline hydrochloride, is indicated for the management of depression and accompanying anxiety and tension. It comes in blue film-coated tablets of 10 mg. per tablet, yellow film-coated tablets of 25 mg. each, and in an injectable solution of 10 mg. per cc.

Trepidone (Lederle) is a new tranquilizer for use in controlling mild to moderate anxiety and tension and to reduce muscular spasm without detracting significantly from mental alertness and without inducing gastro-intestinal discomfort. It comes in tablets of 400 mg. in bottles of 50 tablets.

Decholin-BB (Ames) is for relief of functional gastro-intestinal and biliary tract disturbances. Each tan, uncoated, oral tablet contains sodium butabarbital 15 mg., Decholin 250 mg., and extract of belladonna 10 mg. It is packaged in bottles of 100.

PERFUMES

Custom Fragrance Corporation has introduced six fragrances—Nos. 137, 234, 317, 461, 542, and 654—each to enhance a specific personality, and to be selected on the basis of a "fragrance profile" chart filled out by the customer herself. In spill-proof, refillable purse flacons.

COSMETICS

Toni Extra Conditioning Tame, in a 4 ounce bottle, is for color-treated, brittle, bleached, and extra dry hair.

Bonne Bell Ten-O-Six Treatment Shampoo has an antiseptic action and is recommended for dandruff, over-oily hair, and supersensitive scalps. It comes in an 8 ounce bottle.

Princess Marcella Borghese Ecco, a new perfume, is available in 1 dram, ¼, ½, 1, and 2 ounce containers.

Germaine Monteil Royal Secret Luxury Bath Powder, Bath Foam, and Bath Perfume have been introduced in a floral, herbal fragrance.

Milkmaid Medicated Beauty Skin Foundation combines healing and antiseptic qualities with makeup.

Shulton Old Spice Roll-On deodorant has a wide applicator and contains Allodrin.

Shulton Old Spice Super Smooth Shave offers a new combination of anti-evaporation agents to keep the shave cream moist and firm.

Santoline Quin-O-Lene Bath Oil is a clear, delicately scented bath oil for dry and flaky skin. It is not greasy, and dilutes evenly in the bath. It comes in plastic bottles of 8 oz. each.

Rayette Color Tress Permanent Wave, with three waving formulas can be used on tinted and bleached hair.

Almay hypo-allergenic line of eye shadow sticks comes in six shades including white. The white eye shadow stick is to cover fine lines and blemishes under and around the eyes, as well as a blender for the other shades.

Detrie Fresh 'n Fair is a clear, medicated, greaseless beauty lotion fortified with hexachlorophene to be used as an astringent.

Yardley Flair is a new fragrance to be introduced in perfume, toilet water, soap, bath emollient and dusting powder.

Almay Hair Mist is a hypo-allergenic hair spray that is said to set, hold, and style hair.

Nestle-LeMur Miss Nestle Super Blue Lite is a hair lightener with a smooth cream base that yields superlight blonde shades.

Pinaud Clubman Deodorant is a quick-drying spray containing hexachlorophene for 24-hour protection. The deodorant requires only a two-second spray and doesn't trickle, drip or stain clothing. •

A BASIC CONCEPT WITH THE FLEXIBILITY OF YOUR IMAGINATION

You specify the bottle shape and size—Newman-Green can provide the quality aerosol valve with the built-in adaptability to meet your specific needs. The basic design of the Newman-Green valve and its exclusive features always stay the same. Yet the concept is as flexible as your particular needs may be. Companies all over the world are using this built-in adaptability for a wide variety of products and propellent systems. When you specify Newman-Green bottle valves, you are buying the protection and economy of quality. And our experienced staff is ready to serve you now with the most prompt service possible consistent with the high quality standards aerosol customers have come to expect from Newman-Green.

WESTERN DISTRICT
1144 East Meda Avenue
Glendora, California
MAdison 6-9980

EASTERN DISTRICT
415 Lexington Avenue
New York 17, New York
MUrray Hill 7-7147

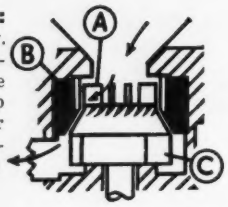
MAIN OFFICE & PLANT
57 Interstate Road
Addison, Illinois
KIngswood 3-6500

NEWMAN-GREEN *Creative Aerosol Valve Engineering*

For micro-refining of wet materials

Eppenbach Colloid Mills

OPERATING PRINCIPLE: Rotor blades (A) break-up slurry. Serrations in rotor and stator provide mechanical shear and force material into adjustable gap (.0005" to .125") between rotor and stator (B) for intense hydraulic shear. Lower part of rotor (C) adds further whirling action.



VT-11

APPLICATIONS: Cosmetics, pharmaceuticals, foods, gum dispersions, insecticides, paints, paper coatings, polishes, plant extracts, resin dispersions, inks, textile and leather finishes, soaps, asphalt or silicone emulsions, etc.

FEATURES: Stainless steel contact surfaces. Ball bearings, whipless shaft. Pumping action. Parts for 3-piece rotor and 2-piece stator available separately for low maintenance. By-pass or recirculating assembly. Jacketed hopper and homogenizing zone. Calibrated micrometer gap adjustment.

SPECIAL MILLS: *Micro-Mill* for lab study of products under "Applications" also wet grinding fibrous tissue, bacilli, spores, mold, yeast, pollen, etc., in 150 ml to 2 liter quantities. Includes recirculating pipe, jacket, removable internal cooling coil. Also serum mills. Pressure head and horizontal or portable mounting available.

LAB, PILOT AND PRODUCTION MILLS. Typical sizes:

Model	hp	rpm*	rotor diam.	gal/hr**
QV-6	¼	8000	2"	to 10
VT-7-2	1½	7200	2.5"	to 60
VT-8	3	3500	4"	to 75
VT-10	10	3500	6.25"	to 200
VT-13	50	3500	8.5"	to 1000

*Also higher-speed belt-driven models.

**For comparison only. Actual output ranges from 50% to 200% of figures shown.

MICRO MILL

Micro-refining with an Eppenbach often improves both product and process. Refining agglomerates in a mix, for example, may improve stability and appearance (shine), speed chemical reaction through greater surface area and reduce amount of emulsifying agent.

The easy-to-set, micromatic gap control allows accurate, systematic reproduction of emulsions or suspensions.

We will be glad to run trial batches of your material at our laboratory—or have an Eppenbach engineer call. Ask about our Rental Plan.

GIFFORD-WOOD CO.

Dept. D7 • Eppenbach Division • Hudson, N. Y.

(*Continued from page 45*)

propellants, the other on the general appropriateness of aerosols for medicines and on specific end uses.

Part 1 begins with the container. Almost every company now filling containers reported using the 1 to 4 oz. size, although three said they only used 4 to 6 oz. containers. Only three reported using 6 to 12 oz. containers. Almost all are using aluminum, glass and tinplate containers, one, two and three pieces. All six companies specifying only one material use glass.

Answers were varied to the aerosol survey's query on which type of container best prevents leakage. Four said glass, three said aluminum, and two said tinplate. Of these, two specified one-piece aluminum, one prefers two-piece tinplate, another, resin-coated tinplate and one manufacturer mentions stainless steel.

Five companies described new containers they would like to see made available. One wants a 15 cc. container; another desires a "material that is non-magnetic, non-corrosive, non-breakable, with a mirror-finish and cheaper than stainless steel;" another metal adherent wishes that metal "could be made in almost any shape and size."

The remaining two wish tinplate in 1-2-3 oz. sizes and a "plastic container as good as glassware so that cost of vinyl coating will be unnecessary."

Most of the respondents specify neck tolerances ranging between ±.002 to ±.005 inches. Container cleanliness is considered a problem by ten companies.

In this connection, only six companies report they "are considering marketing a product in aerosol form labeled 'sterile.' " One may "in the future," another "not at present." Seven say "no."

Peerless was surprised to find as much outcry on the subject of cleanliness. In its own operation, containers are first washed with a degreasing trichlorethylene solution. They may then be given an internal resin coating, or, alternately, a pharmaceutical wash as the last step of the manufacturing process. The latter consists of flushing containers with a compound caustic steam, which etches all plain aluminum surfaces, without harming external decoration, and removes aluminum particles and dust.

Eight survey respondents report using no internal liners, while seven use epoxies, phenolics and vinyls. Twelve use an external coating, mostly PVC on glass, or lacquer on metals.

On the subject of decoration, no problem with fastness of inks is raised in the answers. There is a slight preference for paper labeling over printing, but most companies market containers in both ways.

There seems to be little difficulty in reactions between product, propellent and inks among the respondents. Only four said they had problems, one rarely. But on quality control in container manufacture, eight said it was not adequate.

Twelve companies consider container prices too high, one pointing to PVC-coated glass. Other prob-

lems mentioned in connection with containers were seaming compounds, the impossibility of lithographing a three-piece can, side seam failure and valves and valve cup corrosion.

Practically all companies reported using plastic overcaps; six mentioned metal, and of these, two specified aluminum, one, brass.

Only five companies agreed that trigger tips are preferable to overcaps. Five others had a "yes and no" reply, such as, "Each has its uses." "Trigger tip" refers to the new Metal Fabrications device, which has a plastic actuator housed within a metal or plastic top to prevent accidental actuation. To our knowledge, the only medical aerosol so packaged is Youngs Rubber Corporation's Atha-Spray athlete's foot medication, recently brought out in a three oz. Peerasol container, an all-plastic actuator and top by Metal Fabrications, and a VCA valve working at any angle.

Three companies preferred systems eliminating the other than the "trigger tip." This, however, is a definite problem, since 13 said that pilfer-proofing was an important problem. Only four companies said that overcap prices were too high, but two mentioned having problems with overcap fit.

To the question, "Are present valves able to apply product sufficiently evenly?", six companies said "No," with one adding that metered valves give problems in powders and certain liquids. All respondents felt that valve precision and close tolerances of orifice size were important, excepting one who said it depended on desired product usage. Valve clogging is a problem said 13 respondents, three naming powdered products and one mentioning it was holding up experimental work. However, only three said they had valve leakage problems.

Eight said metering devices were not accurate and one said they were only fair. One suggested they be accurate to plus or minus 10 per cent. However, only four said that metered valves were unsafe for body orfice application, one qualifying this with "in some instances."

A resounding 15 said "yes" to, "Is there a potential for metered valves that could be adjusted according to a medical prescription?" with only one declaring this would be "far too complicated for the average pharmacist." Such a device does not now exist to the writer's knowledge, but it would seem to be not too hard to design and may have a real potential.

Eight companies thought valve prices too high, one specifying metered valves, and three had problems in crimping, in valves for dispensing powders and in specially tailored valves. One company noted that it used valves of its own manufacture exclusively.

On the subject of filling, 11 companies—for reasons of quality control—preferred to do their own filling; another said it was "usually desirable." However, of these, five had unequivocal opinions that a custom filler could do it more economically.

(*Continued on page 74*)

New Perfection

DROPPING PARTS

"Repeat-Sale Insurance" for Liquid Preparations

The New Perfection line of functionally designed dropping parts gives satisfaction where satisfaction counts —in the hands of the user. To make sure the customer's first reaction to your product is 100% favorable, specify New Perfection. Our rigid inspection system assures the cleanliness and uniform high quality of every shipment.

New Perfection dropping parts will fit your bottle or can be furnished in combination with our Modernistic bottles in Amber, Blue, Green or Clear glass. Bottle sizes —⅛, ¼, ½, 1 and 2 oz. (Immediate shipment on all sizes and colors.)

AMEKINE (Oil-Resisting) synthetic rubber bulbs are recommended for use with oil products.

CALIBRATIONS can be applied on either glass or plastic droppers.

No. 1. Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; Saftee ball glass.

No. 2. Non-rolling, extra-depth Bakelite cap; thick flange rubber bulb; special bent glass (CALIBRATED IN COLOR).

No. 3. Regular plastic cap; thin flange rubber bulb; plastic dropper (or glass).

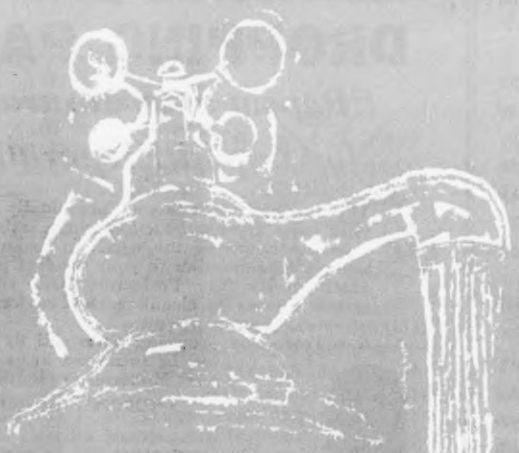
No. 4. Metal cap; oil-resisting Amekine synthetic rubber bulb; blunt glass (or plastic).

We can give prompt service on your special requirements for large or small quantities of droppers made from glass or plastic and in special packaging such as cellophane-wrap. Write for samples and prices.

PENNSYLVANIA GLASS PRODUCTS CO. INC.

428 N. CRAIG ST.

PITTSBURGH (13), PA., U.S.A.



Availability **You need,** you call, and you get, from Roche. This instant availability is a reassuring reason why perfumers of excellence use Roche Aromatics. Large stocks, continuously being produced by Roche quality synthesis, make it possible to ship you—immediately—all you want of what you want. Remember this advantage of Roche Aromatics.

Linalool Roche
Linalyl Acetate Roche
Geranyl Acetone Roche
Nerolidol Roche
Ethyl Linalool Roche

Samples from principal essential oil distributors or

Aromatics Division HOFFMANN-LA ROCHE INC.

Nutley 10, N. J., NOrth 7-5000 New York City, OXford 5-1400

Roche®

NEWS

People ...

New French Official

Francois Goby of Tombarel Freres, S. A., Grasse, France, has been appointed president of Syndicat National des Fabricants d'Huiles Essentielles et Produits Aromatiques Naturels.

Plaut Elected

At the annual meeting of the College of Pharmacy, Columbia University, New York City, Walter N. Plaut, president of Lehn and Fink Products, Inc., was elected chairman of the board of trustees. He succeeds Dr. John N. McDonnell, general manager of the Pharmaceutical Laboratories Division of Schieffelin and Company, who was elected president of the College and re-elected to the board.

JOHN N. McDONNELL

Donald A. Clarke, Ph.D. was elected as a trustee of the College. Dr. Clarke is chief, office of education of Sloan-Kettering Institute for Cancer Research, and also heads the Solid Tumor Screening Section of the Institute. He is associate professor of Pharmacology, Sloan-Kettering Division of Cornell University Medical College.

Rabe Named College President

Charles C. Rabe has been named president of St. Louis College of Pharmacy.

Mr. Rabe was formerly manager of professional and trade relations and government sales for J. B. Roerig and Company, division of Chas. Pfizer & Company, Inc. From 1954 to 1957, he served as assistant to the secretary of the American Pharmaceutical Association in Washington, D. C., before which he was head of the St. Louis College of Pharmacy's department of pharmacy administration.

Wayne Appoints M. Barr

Dr. Martin Barr has been appointed professor of pharmacy and chairman of the department of pharmaceutics at the Wayne State University College of Pharmacy.

Dr. Barr was formerly professor of physical pharmacy and pharmaceutical research at the Philadelphia College of Pharmacy and Science, and an associate in dermatology at the Graduate School of Medicine of the University of Pennsylvania. He was awarded the Ebert Medal by the American Pharmaceutical Association in 1956 for outstanding research in pharmacy. He is author of many scientific articles and technical articles and since 1952 has been technical editor of *The Apothecary* and the *Mid-Atlantic Apothecary*.

MARTIN BARR

New C.T.M.C. President

Theodore W. Schmitt, a director and executive vice-president of Peerless Tube Company, has been elected president of the Collapsible Tube Manufacturers Council, succeeding Frederic Remington, president of Peerless Tube, who founded and became president of the industry's association in 1935.

Commenting on the industry's direction, Mr. Schmitt said that with the "improvements in costs, production rates and quality, we forsee a far greater-than-population increase in tube volume for the many toiletry, household, pharmaceutical and chemical specialty products that are packaged in tubes. Pharmaceutical use should, perhaps, increase the fastest."

THEODORE W. SCHMITT

A. L. Boschen Becomes C.I.A. President

Arthur L. Boschen, vice-president-finance, Richardson-Merrell, Inc., has been elected president of the Controllers Institute of America. He succeeds Frank S. Capon, treasurer, DuPont of Canada Ltd., who was made chairman of the board.

Head of Breck Visits Japan

Edward J. Breck, president of John H. Breck, Inc., accompanied by Mrs. Breck, recently returned from a month-long trip to the Far East. They visited Mr. and Mrs. Kenneth Ault of the Ault Supply Company, Hawaiian distributors for Breck, on a stopover in Honolulu. They also attended the Rotary International Convention and visited with Japanese distributors in Tokyo.

Ungerer Vice-President Returns

George Branigan, vice-president of Ungerer & Company, in charge of the company's New York laboratories and New Jersey plant, recently returned to the United States after an extensive tour of South America. Mr. Branigan has been associated with Ungerer for almost 40 years.

Snapped at a recent gathering to honor Anthony E. Fuchs, who has served Schieffelin and Company for 50 years: (left to right) W. J. Schieffelin, III, vice-president; W. J. Schieffelin, Jr., chairman of the board; Mr. Fuchs; and Sturgis S. Wilson, president of the company.

Schieffelin Honors Export Manager

Anthony E. Fuchs, export manager of the Pharmaceutical Laboratories Division of Schieffelin & Company, was recently honored on the completion of 50 years service to the company.

Lee H. Bristol Honored

Lee H. Bristol, Jr., director of public relations of Bristol-Myers Products Division, has received the honorary degree of Doctor of Laws from Findlay College, Findlay, Ohio, and from Missouri Valley College, Marshall, Missouri.

Mr. Bristol was the principal speaker at the Founders Day Exercises at Findlay, and delivered the commencement address at Missouri Valley College.

D. Powers Joins Massachusetts Firm

Dr. Donald H. Powers, newly appointed assistant director of Fabric Research Laboratories, Inc., will

DONALD H. POWERS

head the chemical research functions of the firm. He was formerly head of research, Warner-Lambert Pharmaceutical Company, and consultant for Arthur D. Little, Inc., before retirement.

Executives Receive Degrees

Francis Boyer, chairman of the board of Smith Kline & French Laboratories, was awarded an honorary Doctor of Laws degree by the University of Pennsylvania for his service to the community, through his efforts in stimulating drug research and promoting better mental health. He also received an honorary Doctor of Science degree from Trinity College, in recognition of his active role in health and educational affairs.

Walter A. Munns, president of the firm was the recipient of an honorary Doctor of Science degree from St. Louis College of Pharmacy.

Indiana University Award

Verling M. Votaw, director of professional services, Toilet Goods Division, Proctor & Gamble Company, has received Indiana University's highest alumni honor, the Distinguished Alumni Service Award. The award cited Mr. Votaw as a "successful scientist and industrialist and developer of important contributions to the health and welfare of our people."

Retirements

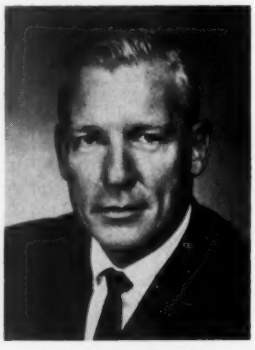
Dr. B. Scott Fritz has retired as managing director and assistant vice-president of Wyeth Laboratories, after 26 years with the firm. Dr. Fritz began his pharmaceutical work in 1935 when he joined the Gilliland Laboratories, now a part of the Wyeth division of American Home Products Corporation. He is recognized as an authority on the chemistry of viruses and other living organisms from which smallpox and polio vaccine drugs are made. . . . **Dr. Charles E. Fanslau,** head for the past 24 years of Winthrop Laboratories' Veterinary Department, which he organized, has retired. At the age of 65, he has enrolled for a four-year college course leading to an A.B. degree in business and finance, which he will begin at Seton Hall University after a Hawaiian vacation. . . . **Frederic Remington,** president of Peerless Tube Company, was given a testimonial dinner by the Collapsible Metal Tube Council on his retirement as president of the industry association which he had founded.

Frederic Remington shown at dinner given by the Collapsible Metal Tube Council.

Ferguson Elected GCMI President

James G. Ferguson, vice-president of the Laurens Glass Works, Inc., has been elected president of the Glass Container Manufacturers Institute, Inc. Roger H. Hetzel of Armstrong Cork Company was elected first vice-president, and William M. Cameron of Hazel-Atlas Glass Division of Continental Can Company, Inc., second vice-president.

On the board of trustees, S. B. Merell of Anchor Hocking Glass Corporation was re-elected, and R. H. Mulford of Owens-Illinois Glass Company and Dr. A. W. Wishart of Knox Glass, Inc., were newly elected, all for three-year terms.



JAMES G. FERGUSON

Expansions, New Plants and Acquistions . . .

Pfizer Acquires Stock

Chas. Pfizer & Company, Inc., has acquired all the outstanding capital stock of Paul-Lewis Laboratories, Inc., a company specializing in enzyme production, research and technology. The acquisition is based on an exchange of approximately 60,000 shares of Pfizer common stock for the stock of Paul-Lewis, which will become a subsidiary of Pfizer.

Paul Halmbacher will remain as president of Paul-Lewis Laboratories, Inc.

IFF Expands In England

International Flavors & Fragrances Inc. has announced that construction of a new plant and company headquarters for its British subsidiary International Flavors & Fragrances, I.F.F. (Great Britain) Ltd. is under way at Enfield, England.

Scheduled for completion by mid-1962, the facility, which will double the size of the present facility, will include a building for administration and sales as well as separate flavor and perfumery production units, each with its own research and development laboratory.

Plant to Produce Plastic Films

Allied Chemical has acquired a plant site, including two modern buildings, from Landis Tool Company, near Pottsville, Penna., for its first commercial plant to produce plastic films. The initial products will be Aclar fluorohalocarbon and Capran polyamide films.

Owens Is Building

St. Louis, Mo. and San Jose, Calif., are the locations of two new facilities of Owens-Illinois Glass Company, for the production of blown plastic bottles. Blow-molding equipment will be installed in a leased building in St. Louis and at an existing plant in San Jose. Construction of a glass container plant near Tracy, Calif., also has begun. The 305,000 square-foot plant will occupy a 150-acre site.

New Abbott Branch

Abbott Laboratories, Ltd., has a new branch building in Winnipeg, Manitoba, Canada. The modern brick and steel one-story structure, covering 13,455 square feet on a two-acre site, is situated at Fife Street and Inkster Boulevard in Winnipeg's new industrial park. The new branch includes general offices and warehouse space with an enclosed loading dock.

Endo Labs Expands

Endo Laboratories plans to build a new plant and offices in an eight-acre plot adjoining Meadowbrook Parkway, Garden City, Long Island, N. Y. Construction is expected to start in March 1962, and the cost is estimated at $5 million. Both staff and sales force will be expanded, once the increased manufacturing facilities are completed.

Representatives for Philco Division

The Landsale Division of Philco Corporation has established a nationwide organization of franchised manufacturers' agents to represent its Equipment Manufacturing Operations, which produces Philco's controlled environment systems for industrial processing, and equipment for semi-conductor materials preparation.

The equipment provides dry boxes, dust shields and vacuum ovens for precise control of dust and atmospheric conditions for such industrial areas as pharmaceutical, biological, and chemicals processing.

The sales representatives are: Howard F. Brennan, N. J.; Frank F. Sahms, Penna.; Laurence Wagner, Calif.; Edward F. Mooney, Mass.; Southwest Machine Tool Company, Ariz.; Wright Industrial Products, Texas.

Sulray Buys DuBarry

Sulray Inc., has agreed to purchase DuBarry of Hollywood, Inc., by an exchange of stock. Hal A. Salzman, Sulray president, said that the acquisition will strengthen the distribution of each company's products, and that it represents a continuation of Sulray's program of acquisitions; others are presently in negotiation. DuBarry is doubling its manufacturing facilities for its expanding line of new products.

Other details of the transaction were not disclosed.

McNeil Moves

McNeil Laboratories, Inc., has completed its move to its new plant in Fort Washington, Penna., with the transfer of administrative personnel.

Armstrong Cork Expands

Armstrong Cork Company has expanded the facilities of its glass container plant in Dunkirk, Penna. Among them is a glass melting furnace, which increases production capacity by 50 per cent, modern forming machines, lehrs, carton assembly and packing equipment, an underground cullet handling system; a new plant unit for the design, manufacture, and maintenance of molds; a new process plant and control laboratory; and facilities for unitized storage and shipping at the plant, including a 144,000 square-foot warehouse addition.

Barr Facilities Increased

Plant facilities at G. Barr & Company have been increased by 30,-

These Genetron, 15-ton, tank trucks are part of Allied Chemical's General Chemical Division's new fleet, servicing the East Coast aerosol industry from bulk storage facilities at Elizabeth, N. J.

For success in creating

Aerosol perfumes and colognes

rely on Givaudan ability

Superior skill, artistry, creative imagination, knowledge of consumer preferences...these are the foundations on which a successful perfume or cologne is built. But...an aerosol fragrance requires even more.

Givaudan offers a complete line of perfume and cologne fragrances which have been specifically prepared to meet the requirements of pressure packaging. Or, we can custom-make a fragrance to meet your specific aerosol needs.

Our staff will welcome the opportunity to discuss your aerosol fragrance requirements.

GIVAUDAN

GIVAUDAN-DELAWANNA, INC.
321 West 44th Street, New York 36, N. Y.

000 square feet through the acquisition of additional warehousing and manufacturing space, by leasing the one-story brick building at 1130 West 37th Street, Chicago, Ill. The building is adjacent to the firm's plant at 3601 South Racine Avenue.

Ayerst Has New Chicago Center

Ayerst Laboratories has expanded its Chicago distribution center and office facilities for the third time since 1950 with a new structure providing 18,000 square feet of space. The new building is located at 7545 North Natchez Avenue, in the suburb of Niles.

Knox Glass Opens New Plant

Near Atlanta, Ga., Knox Glass, Inc., has opened a new plant, with a floor space of 285,000 square feet. The plant includes two glass melting furnaces with a daily capacity of over 200 tons, a batch plant, annealing lehrs, storage and shipping areas, garages, offices, and other necessary facilities.

Procter & Gamble Builds

Procter & Gamble will build a synthetic detergents plant in Augusta, Ga. Construction will start early this fall and the plant is expected to begin production early in 1963.

Parke, Davis Build in Canada

Parke, Davis & Company, Ltd., is constructing a $150,000 office-warehouse building to be used as headquarters in Manitoba and Saskatchewan, Canada. It will have 9,600 square feet of floor space, and is scheduled for completion this month. The new plant is located at Fife and Insketer Streets in Winnipeg. The new building will replace the present 538 Broadway office.

New Lermer Plastics Division

A new division has been added to Lermer Plastics, Inc., for manufacturing flexible acetate containers in diameters of ¼ through 1¼ inches in lengths as needed.

Silicone Products Moves

Silicone Products Department of General Electric has moved its Michigan sales office from Detroit to larger quarters at 21590 Greenfield Road, Oak Park. The manufacturing, research and marketing facilities for the company's silicones remain at Waterford, New York.

New members of Sterling Drug's Quarter-Century Club are shown with J. Mark Hiebert, chairman and president of the firm. Left to right: Henry Belschwinder, Joseph W. Burkhard, William J. Bott, Isabel M. Niemeyer, Dr. Hiebert, Anna M. Columby, Joseph M. Kreidel and A. J. Saltalamacchia.

New Locations

Brockway Glass Company Inc.'s New York district office has moved to 320 Park Avenue, New York City 22. . . . **Anchor Hocking Glass Corporation's** New Orleans Package Division display and sales office is now at 3200 St. Bernard Avenue, Suite 409, New Orleans 19, La.; its San Francisco office at 550 California Street, San Francisco 4.

Ormont Drug Expands

Ormont Drug Company and its divisions, Clarke Whitney, Inc., and Capital Labs, Inc., are planning expansion in the proprietary field, and a new ethical division.

Company News...

Fallek Products Appointed

Tennant Development Corporation, a subidiary company of C. Tennant, Sons & Co., of N. Y., has appointed Fallek Products Co., Inc., N. Y., as their exclusive distributor of fine chemicals and other chemical products.

Strip Packaging Facilities Available

Nysco Laboratories, Inc., Long Island City, N. Y., private label manufacturers of pharmaceuticals and cosmetics, now have strip packaging facilities for tablets ranging from ⅜ to ¾-inches diameter, for hard gelatin capsules sizes 0, 1, 2, 3, and 4, and for large capsule-shaped tablets and soft gelatin capsules. Materials include the generally available ones; printing equipment is available, and trade names, instructions, code numbers, and the like, can be imprinted in any color.

Sterling's Quarter-Century Club Admits New Members

At a dinner at the Hotel Astor in New York City, Sterling Drug Inc. admitted 49 employees to membership in the company's Quarter-Century Club. J. Mark Hiebert, chairman and president of Sterling, presented the 25-year awards.

Fleuroma Announces Change in Street Name

Fleuroma, Inc., announces a name change for the street on which its building is located: 43-23 37th Avenue, **Long Island City 1, New York** is now correct and represents a change from the former name of Dreyer Avenue.

Fleuroma moved into the Long Island City plant in August, 1960, and asked the appropriate municipal authorities for the change.

Plastic Consultants to Represent Clemens Chemical Co.

Plastic Consultants, Inc., Wantagh, N. Y., has been appointed exclusive United States representatives for the Clemens Chemical Company of Brampton, Ont., Canada, manufacturer of Natural Pearl Essence, nontoxic and nonstaining pearl pigments for iridescence in nail polish, lipstick, and eye shadow.

Fritzsche Honors Two

Edward E. Langenau, vice-president and director of the essential oil and chemical firm's Analytical Laboratories, and Henry Bechtolf, flavor chemist, recently became members of Fritzsche Brothers' Quarter of a Century Club and were honored at a luncheon.

Resistant "STAPH"?
Use **G-11®** *(Hexachlorophene U.S.P.)*

Today, in hospitals throughout the country, increasing emphasis is being placed on programs for the control of staphylococcic infections. In some hospitals and communities these infections have at times approached epidemic proportions.

One important cause of this health hazard is the ease with which the staphylococci develop resistance to antibiotics.

Fortunately, these staphylococci show no resistance to G-11 (Hexachlorophene). It is one of the most, if not *the* most effective, of all commonly available antiseptics for the treatment of local infections and reducing the spread of staphylococci by preventing colonization on the skin and transmission via hands and the air.

Ask for complete technical report, "G-11 for Control of Staphylococcic Infections."

Sindar is the discoverer of hexachlorophene and its trade name "G-11" stands for the experience and knowledge gained through the years of widespread use. Our laboratories are staffed and organized to give you the benefits of this pioneer experience. Your inquiries will receive our prompt attention.

SINDAR® Corporation

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Association News

P.M.A. Meeting

At the third annual meeting of the Pharmaceutical Manufacturers Association, Eugene N. Beesley was installed as chairman of the board of directors.

The following officers were elected: chairman-elect, S. Barksdale Penick, Jr.; vice-president, John T. Connor; vice-president, George R. Cain; vice-president, Kenneth F. Valentine; and treasurer, L. D. Barney.

New directors are: L. D. Barney, Francis C. Brown, William C. Conner, William N. Creasy, William B. Graham, Philip B. Hofmann, H. Robert Marschalk, S. Barksdale Penick, Jr., and Dr. E. Gifford Upjohn.

PMMI Meeting

The fifth regional meeting of the Packaging Machinery Manufacturers Institute was held recently at the Schine Inn at Chicopee, Mass. Eighty-seven persons representing 46 leading manufacturers of packaging machinery were present. Three symposiums dealing with research and development problems, sales problems and manufacturing problems were held.

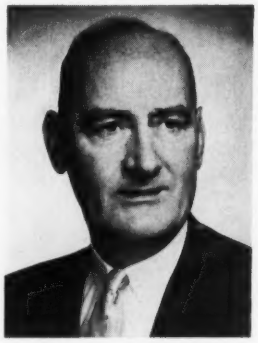
The research and development discussion was moderated by W. R. Huguenin of the Food Machinery Corporation Stokes and Smith Plant. Panel members included John W. Murray of Emhart Manufacturing Company, Kendall D. Doble, Jr. of Pneumatic Scale Corporation, Ltd., George L. N. Meyer, Jr. of Economic Machinery Company and Frank B. Fairbanks, Jr., of Horix Mfg. Co.

The sales problem symposium was moderated by W. B. Bronander, Jr. of Scandia Machinery Company. The manufacturing problem symposium was moderated by Richard Dede of New Jersey Machine Corp.

During the meeting, Charles Barr, former president of the Redington Company, who has been associated with the packaging machinery business for more than 41 years, was given a PMMI honorary membership by Kenneth B. Hollidge, Arthur Colton Company executive vice-president. Mr. Hollidge is serving his final year of a two-year term as PMMI president.

Charles Barr (right) receives PMMI honorary membership from Kenneth B. Hollidge, pres.

Appointments and Promotions. . .



DAVID J. FITZGIBBONS

David J. Fitzgibbons, formerly vice-president, has been elected executive vice-president of Sterling Drug Inc.

Stanley M. Rumbough, Jr., replaces Hubert Richter, who is retiring, as president of White Metal Manufacturing Company.

STANLEY M. RUMBOUGH, JR.

Shulton, Inc. has elected **David Gregg, Jr.,** vice-president-international, to the board of directors; John K. Bangs, assistant secretary, is now assistant corporation secretary;

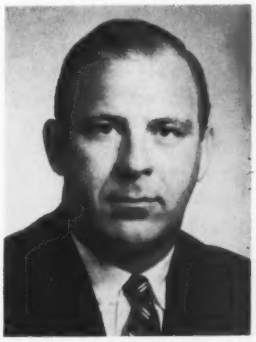
DAVID GREGG, JR.

and Adam J. Grodin, executive art director, is now vice-president-art.

Edward H. Beardsley, elected president and chief executive officer of Miles Laboratories, Inc., succeeds **Walter R. Beardsley,** who continues as chairman of the board. **Dr. Walter A. Compton,** replaces E. Beardsley as executive vice-president, and continues as medical director.

Fritzsche Brothers, Inc. has appointed **Peter Wood,** newly elected vice-president, as director of its Flavor Division. The following directors have been elected to the board: **John L. Cassullo, Ernest Guenther, Frederick H. Leonhardt, Jr., Wil-**

EDWARD H. BEARDSLEY



PETER WOOD

there's more profit in beauty... when

Lacquerite produces your BULK NAIL POLISH!

THE FINEST BULK NAIL LACQUER...

FROM THE RESEARCH LABS OF LACQUERITE!

There's a Lacquerite polish for *your* market in *your* price range and in fabulous shades your customers will buy bottle after bottle.

Find out how profit comes in every drum of Lacquerite polish!

Lacquerite CO., 185 MADISON AVE., NEW YORK 16, N. Y. • MANUFACTURERS OF NAIL POLISH

liam H. Mathers and Ellis F. Merkl.

Appointed as vice-president of Northam Warren, is **Gerry Cannon,** formerly assistant general manager.

Dr. Robert P. Parker, formerly assistant general manager, succeeds Lyman C. Duncan, who remains as vice-president, as general manager of the Lederle Laboratories Division of American Cyanamid Company.

GERRY CANNON

Wyeth Laboratories has named **Stuart V. Smith,** vice-president and director of sales, to the newly created post of vice-president and director of marketing. **Harry F. AuBuchon,** formerly sales manager, becomes assistant vice-president and director of sales; **Douglas J. Withington,** director of promotion, also is advanced to assistant vice-president. **Lee J. Hymel** replaces Mr.

ROBERT P. PARKER

AuBuchon as sales manager. **Peter G. English** fills the new position of project manager for infant nutrition formulas. Mr. English has been working with Wyeth's medical department, translating clinical studies into sales and promotion programs.

Gilbert J. Straub has joined the staff of Lakeside Laboratories, Inc., as director of product development. He had been coordinator of new product marketing at Baxter Laboratories.

Chanel, Inc. has appointed **Irving A. Tanner,** previously regional merchandising director for Glemby Company, as field sales manager.

New director of commercial development for Chas. Pfizer & Company, Inc. is **Dr. Robert J. Feeney,** formerly scientific assistant to the president. **Herbert Grossman** returns to Pfizer after a three-year absence as director of marketing. **Carl Q. Keller** has been made administrative assistant to the medical director of Pfizer Laboratories. Since 1957, Mr. Keller has been clinical research coordinator for Pfizer. J. B. Roerig and Company, division of Pfizer, has named **Charles J. Eldredge** as assistant to the director of operations, **Milton Wasserman** as northeastern regional manager to replace Mr. Eldredge. Finally, **Stuart Kornblum,** a Roerig medical

STUART V. SMITH

service representative on Long Island, N. Y., has been named district manager for Brooklyn and Manhattan.

John E. Farrell is now Cincinnati district sales manager for the Plastic Bottle and Tube Division, Continental Can Company.

Changes for S. B. Penick & Company's sales department include that of **William F. Lacey** now covering Brooklyn, Long Island, and Staten Island, N. Y.; and **F. X. McCormack,** representing the company's Botanical and Allied Products Division and Farm Chemical and Insecticide Division in southern N. J., Penna., Md., Del., W. Va., and Wash., D. C. Mr. Lacey had served in an inside sales capacity, and Mr. McCormack had covered upper New York State.

Sydney P. Cook, formerly with Campbell-Ewald Company, has joined the R. P. Scherer Corporation as manager-market research and advertising. **Albert K. Detwiller, Jr.** has joined their eastern area sales staff.

C. A. Burnett has been appointed vice-president and general manager of the General Manufacturing and Cosmetic Container Divisions of Scovill Manufacturing Company.

Arthur Hanisch, founder of the Stuart Company, was elected a vice-president and a director of Atlas

GILBERT J. STRAUB

Chemical Industries, Inc. Stuart recently merged into Atlas Chemical.

The appointment of **Norman W. Achen** as a vice-president of Hyland Laboratories division of Baxter Laboratories has been announced. Mr. Achen, had served as assistant to the president.

In a new program for Jacqueline Cochran, Inc., **Joseph E. Cassidy,** formerly with Revlon and Helena

IRVING A. TANNER

Rubinstein, is vice-president in charge of sales; **Durel Dugas,** formerly with Lentheric and Tuvache, Inc., is vice-president of merchandising and promotion of the fragrance lines; and **Dr. Stephen Karas,** formerly with Helena Rubinstein, is director of product research and development.

Leonard A. Friedman has resigned as vice-president of Reed & Carnrick, division of Block Drug Company, to assume the presidency

DEHYDAG

DEHYDAG SUPPOSITORY BASES

high purity
good compatibility with the skin and mucous membranes
easy technical processing

DEHYDAG SUPPOSITORY BASES

good liquefaction on the skin and mucous membranes
quick spreading of the base
fast resorption of the active ingredients from the base
uniform structure and smooth appearance of the suppositories

DEHYDAG SUPPOSITORY BASES

easily miscible with practically all pharmaceutical active ingredients in powder and liquid form as well as with oily substances. Good emulsification (Type W/O) of aqueous and alcoholic preparations for medical purposes.

DEHYDAG SUPPOSITORY BASES

clinically and pharmacologically tested and approved.

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DEHYDAG **DEHYDAG PRODUCTS** **Germany · Düsseldorf**

DISTRIBUTORS IN USA: Fallek Products Co., Inc. — 165 Broadway — New York 6, N. Y. • A. H. Carnes Co, — 75 East Wacker Drive — Chicago 1, Ill. • Ben R. Hendrix Trading Co. Inc. — 409 Cotton Exchange Building — New Orleans 12, La. • R. E. Flatow & Co., Inc. — 10 Madison Str., P.O.B. 1166 — Oakland 4, Calif.

DISTRIBUTORS IN CANADA: Canerpa Ltd., — Suite 223, Drummond Building, 1117 St. Catherine Street West — Montreal • Canerpa Ltd. — 137 Wellington Street West — Toronto

of Ormont Drug Company, in which he has acquired a major stock interest. (See Expansions)

Richardson-Merrell Inc. has appointed **Edward P. Anderson** as senior vice-president of advertising. He also will supervise Morse International Advertising agency, a Richardson-Merrell subsidiary. **Richard D. Waters,** president of the Vick Chemical Company division, is now executive vice-president of Richardson-Merrell, supervising the Vick Chemical, Vick International and Vick Manufacturing divisions.

Dr. Mac Roy Gasque now holds the newly created post of medical director of Olin Mathieson Chemical Corporation. Dr. Gasque had been medical director of Olin's Ecusta and film operations at Pisgah Forest, N. C.

Two new directors elected to the board of R. W. Greeff & Company, Inc. of New York City, at the June meeting, are: **E. G. Knobloch,** sales manager of the company's pharmaceutical department, and **J. I. Vandewater,** sales manager, industrial chemicals.

Clarence F. Michalis has been elected treasurer of Bristol-Myers Company, replacing **Gavin K. MacBain,** who is leaving to become president of the First National City Bank of New York.

Dr. J. Kapp Clark, director of research and development, has been named vice-president, research and development, of Smith Kline and French Laboratories.

Gilbert Hall has been named plant and production manager of Vim Laboratories Company, Inc., and will direct the manufacturing facilities established recently near Frederick, Maryland. Mr. Hall was previously aersosol supervisor for Revlon, Inc. **Ralph Higgins** is now director of research.

Jack I. Le Vant is now director of marketing of Colgate-Palmolive Company's Pharmaceutical Laboratories Division. Mr. Le Vant continues as executive vice-president and general manager of S. M. Edison Chemical Company, Inc., a wholly owned subsidiary.

Gene A. Brost has been named product manager-intermediates, Antara Chemical, a division of General Aniline & Film Corporation. Formerly midwestern regional manager, he succeeds **Frank Card,** who has resigned to accept a position with another company.

New department heads for the newly created midwestern region of Owens-Illinois Glass Company's Glass Container Division are **Bruce J. Amacher,** administrative manager; **C. Wayne Snell,** service manager; and **Glenn L. Baker,** quality and specifications manager.

Daniel A. Llewellyn, assistant plant manager at the company's Cleveland plant, has been named manager of National Can Corporation's manufacturing plant at Marion, Ohio.

Union Carbide Chemical Company has promoted **Eugene T. Clayton** to the position of project leader at its Technical Service Laboratory. He has been research associate since 1959.

John H. Breck, Inc. has named **Henry F. Spadoni, Jr.** of the technical service section of the research and development laboratories, to the newly created position of packaging manager.

Appointment of **Carroll C. Grinnell** to the position of director, product management, Mead Johnson Laboratories, has been announced. Mr. Grinnell was recently vice-president and chairman of the plans board of Street & Finney, New York City advertising agency. Reporting to Mr. Grinnell will be **John F. Casey** and **Carl G. Torrey,** associate directors.

Rilling Dermetics Company has made the following promotions: **Arthur Tarasov,** from group leader to assistant director of research; **Philip Carrubba,** from leader to control director.

Promotion of **John R. Yost** to supervisor, Chemical Pilot Plant, of the Squibb Institute for Medical Research, has been announced. He was formerly special assistant to the director of research.

Two appointments to the Organic Chemicals Division technical staff of Emery Industries, Inc. have been made: **Kenneth H. Pettengill,** past chairman of the Ohio Valley Section of the American Institute of Chemical Engineers, is now manager of the process research section; **Herbert M. Kay,** technical service engineer at Celanese Corporation, is now a product development representative.

Obituaries

E. A. Cahill

Dr. Edward A. Cahill, who served as president of Allied Laboratories, Inc., for 25 years and chairman of the board for four years, died June 13, in Kansas City where he resided. He was 75 years old.

R. W. Jiannott

Roy W. Jiannott, package development manager of Burroughs Wellcome & Company, Inc., died June 21. He was 46 years old. He had been with Burroughs Wellcome for the past 22 years.

R. E. Johnson

Roy E. Johnson, president of Arenco Machine Company, Inc., died in May, at the age of 61. He had been with Arenco 36 years, and was also a director of the Transamerican Match Company, Esab Welding Corporation, and the Swedish Chamber of Commerce of the U. S. A.

I. Griffith

Dr. Ivor Griffith, president of the Philadelphia College of Pharmacy and Science since 1940, died May 16, at his home in Germantown, Penna. He was 70 years old.

Dr. Griffith was an editor, chemist and educator. He edited *The American Journal of Pharmacy* from 1921 to 1941, and *Science Talk* from 1924 to 1941. He also served as president of the American Pharmaceutical Association.

W. R. Kiner

William R. Kiner, manager of drug and cosmetic sales of the New York district office, Packaging Materials Division, Armstrong Cork Company, died May 19, at his home in Madison, New Jersey. He was 53.

Mr. Kiner joined Armstrong in 1926, after attending the University of Pittsburgh and Mercersburg Academy in Pennsylvania.

J. B. Braun

James B. Braun, 46 years old, died on May 23 at his Chicago home after a long illness.

He had been president of the Murine Company since 1948.

M. W. Dicks

Merrill W. Dicks, Denver branch manager for Parke, Davis & Company, died on May 30. He was 41.

Mr. Dicks joined Parke-Davis in 1946 as a medical service representative.

In his memory, the Merrill Dicks Memorial Fund has been established at the University of Colorado College of Pharmacy.

(*Continued from page 61*)

Answers regarding the volume point at which a marketer can economically do his own filling ranged from 500,000 units-per-product-per-year to 10,000,000. Three said one million, and another three gave the two to five million range. Only two felt that present filling was not accurate.

Companies were evenly divided on filling methods, five preferring cold filling, five liking the pressure method. One said either, another, neither, and one said it depended on the product.

For the rest, respondents seemed fairly satisfied with filling. Only three said filling machinery was not adequate, only two that it was not fast enough. Two felt filling was too expensive, and one equivocated.

The questions on merchandising touched a sore spot. The first question was, "In the case of proprietary medical products, do you think retail outlets give more prominent space to aerosol products than to those conventionally packaged?" Ten said "no." only seven answered in the affirmative and the rest didn't know—which certainly indicates a lack of information.

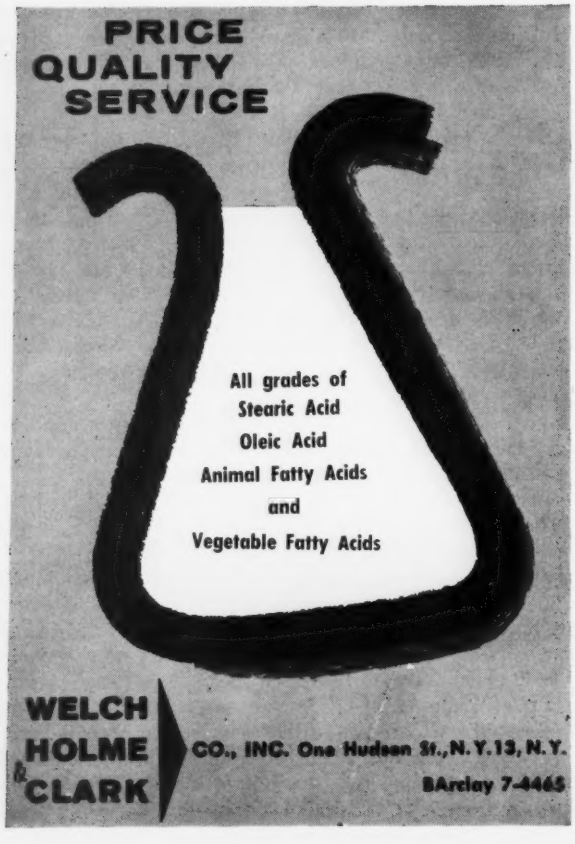
Asked how similar products packaged both in conventional and aerosol form were doing, a full five responded that a product in conventional packaging sold best, which may be because aerosols are more expensive.

Fifteen respondents felt that retailers did not effectively explain aerosol attributes to customers; only two felt they did. On what should be done, eight stated, in various ways, that the crux of the problem was in educating the sales people in drugstores and other outlets. Three considered it a matter of educating the public through advertising, one mentioning the glass industry's campaign. (CSMA, it should be noted, does have an active public relations program on behalf of the aerosol industry.) There were two other opinions: one that there should be a financial incentive to promote aerosols, presumably for detail men; and another, that a "self-selling" product would obviate the need to sell aerosol attributes.

Part 2 of the survey was an attempt to discover whether aerosols generally are suited to medical needs and which medical products should be packaged in aerosols. All questions were given in relation to the qualities of other packaging.

Most of the respondents agreed that the commonly known attributes of aerosols are applicable to medical usage. For instance, 19 believed that aerosols remained "clean" throughout use, one adding, "They also remain sterile." Twenty-two, with only one negative from a prominent pharmaceutical producer, agreed that aerosols reduce cross-infection.

Fourteen agreed that aerosols apply a product "most thoroughly" (versus other packaging). Three demurred that this depended on the product and



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application.

Again, 14 agreed that aerosols apply product faster in emergencies, two adding "in most cases." One said this was "immaterial."

Twelve felt that aerosols "practically" eliminate wastage of product. However, nineteen agreed that aerosols reach body areas where medicines are hard to apply, two others said "sometimes."

The next question was controversial. Eight respondents were completely negative as to the possibility that aerosols might in the future replace injections for systemic applications; two more were "doubtful." There were six, however, who thought they could, and three said possibly.

Oddly enough, only 14 unequivocally agreed that aerosols were more convenient for doctors. "For patients too," one sensibly added. Three added. "sometimes," another, "should be." Only ten who felt that aerosols are the most efficient package available; four others said "sometimes."

The next question, "Are aerosols economical, considering all factors?", did not elicit agreement; ten said "yes," nine said "no."

Regarding specific products, the survey asked which ailments could be assisted by the use of aerosols. For burns, there were 22 affirmatives, 20 said "yes" for insect bites, for general dermatoses, for skin rashes, and for athlete's foot. However, only 13 were affirmative for acne and 15 for diaper rashes.

Only six who thought aerosols would be beneficial for eye application, with another "possible." One of the affirmatives felt a metered valve should be used.

Fifteen approved of aerosols for nasal sprays, 17 for dental mouth sprays and 18, with another "possible," for respiratory tract products, 19 for aerosol vaginal products, and 13 for anus medications. Just 11 saw the value of aerosols for oral products such as vitamins, and surprisingly, only 13 accepted aerosols for ear sprays.

All but one agreed on aerosol room vaporizers and air sanitizers—this "hold-out" respondent, incidentally, weighted the results by saying "no" to practically everything. Nineteen thought aerosols were good for hospital cleaners and 20 for external analgesics.

Although sixteen agreed that aerosols should be used for lung treatment inhalants, only ten thought they would be good for systemic drugs not injurious to lungs, to replace injections.

There were 18 agreements on aerosols for surgical dressings, of which there are a number on the market. E. R. Squibb's "Rezifilm," for instance, is said to inhibit growth of, or to kill, many antibiotic-resistant bacteria. It is being used as both a pre-operative and a post-operative dressing, and its transparency permits surgery to be performed without its removal.

Surprisingly, there were eight affirmatives and one "possible" for post-operative aerosols as sutures (pos-

GCC

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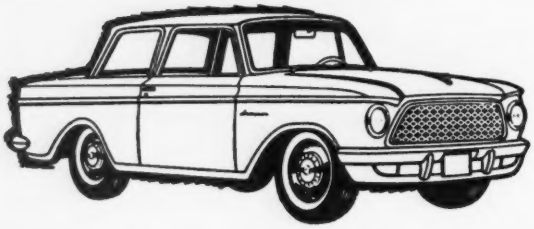

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sibly with clamps). To date, no material has been found strong enough for this purpose.

Sixteen thought aerosols should be used for application of sulfa during surgery, rather than dusting. There was one additional comment that aerosols should be considered for all drugs that the body assimilates quickly.

It appears, both from the general divergence of the respondents' opinions and also from the number of incomplete surveys returned, that much study of aerosol packaging remains to be done. Opinion is also considerably divided on which medical categories will be benefited by aerosols in the future.

Peerless Tube had been expecting, because of the increases in medical products being packaged in its aerosols, that the long-awaited surge in medical aerosols was on the way. And medical aerosols may be in for a lift from their doldrums—doldrums, that is, in relation to their potential. However, it seems that the present "information gap" must be closed—both for the pharmaceutical industry and the consuming public—before the real potential of medical aerosols can become a reality.

PETROLATUM

(*Continued from page 37*)

This state of affairs changed rapidly, and the exportation of petrolatum became an established and profitable part of the American business. The indirect evidence for this is the considerable effort exerted in Europe to produce a competitive product. No less a chemist than Mendelejeff worked on the problem. He reported in 1881 that he had obtained Vaseline from the distillation residue of Baku crude oil;[8] the product was claimed to be equal to the American one, but had a higher specific gravity.

While attempts were made in Europe to produce petrolatum by methods similar to those used in this country, another approach was also tried. This was the blending of paraffin wax or other solid hydrocarbons with a heavy lubricating oil distillate. The German Pharmacopoeia even provided for such a product (unguentum paraffinae), which consisted of a blend of ceresin and paraffin oil (Vaseline oil). Petrolatum made from Russian or Galician residues may have resembled U. S. petrolatum, but blends of paraffin wax and oil do not produce the stable gel structure obtained with residual hydrocarbons, which is characteristic of petrolatum.

The competitive challenge was met by American industry with technological improvements, which

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compounded the advantage of more suitable raw materials. The original process of petrolatum manufacture was possible only because of the availability of an asphalt-free crude oil distillation residue from Pennsylvania crude oil with the concentration of solid hydrocarbons required to form a stable gel, which could be easily decolorized by adsorption of the coloring matter on charcoal. It was later found that the semi-solid product that collects on the pump rods of some Pennsylvania oil wells (rod wax) had properties similar to those of the distillation residues used for petrolatum manufacture, and that petrolatum could be obtained from it by removal of the low-boiling hydrocarbons, followed by the usual filtration process. Although the supply of rod wax was not unlimited, it broadened the base of petrolatum manufacture.

A similar concentration of solid residual hydrocarbons was obtained at about the turn of the century by a different process, namely, the "cold settling" of crude oils. This operation was perfected in 1919 and 1920 by Max B. Miller, who used Sharples centrifuges to replace settling, which was wasteful of time and capacity. This method of removing solid hydrocarbons from residual oils and producing petrolatum is still in use today. In another process used for the same purpose, the residue is dissolved in methyl ethyl ketone or similar solvents, together with toluene and/or benzene, the solution is chilled and the precipitated solid hydrocarbons are removed by filtration. It is obvious that modern processes have immensely increased the control over the operation that provides the raw material for petrolatum manufacture.

The conversion of petrolatum stock into finished petrolatum has undergone fewer basic changes, although their economic impact has been considerable. The removal of coloring matter is still accomplished by adsorption, but the adsorbent has changed greatly. The use of charcoal for petrolatum manufacture was continued until the Nineteen Twenties, after which it was supplemented by fuller's earth (montmorillonite). While fuller's earth can be more readily regenerated than charcoal, its adsorptive capacity, too, is reduced by each regeneration so that finally it must be discarded. This difficulty is overcome by the use of a special high-iron bauxite, developed in 1933 by the Daugherty Refinery Division (Petrolia, Penna.) of Sonneborn Chemical & Refining Corp., which started petrolatum manufacture in 1882. This bauxite (Porocel) can be regenerated indefinitely with little loss in activity and is now generally used for the decolorization of petrolatum.

The chemical nature of petrolatum was the subject of a great deal of investigation after Vaseline made its first appearance. Actually, the first paper on petrolatum, that by A. W. Miller,[5] dealt with an attempt to prepare a substitute for the expensive product, which cost $1.00 per lb. The formulation of such a substitute was based on the finding that solid

hydrocarbons were precipitated when alcohol was added to a solution of cosmoline dissolved in ether and naphtha; this was taken as indication that a solution of paraffin wax in oil should be a reasonably satisfactory "synthetic" petrolatum. Moss,[7] in 1876, also concludes that Vaseline is a mixture of paraffins, since it has all the properties characteristic for paraffins. Interestingly enough, among these properties is included the ability of Vaseline to be cracked to liquid products when distilled under pressure. It must be mentioned that Miller recognized his error: he clearly stated in 1874,[9] "The first paper I wrote was erroneous in making paraffin the base for a substitute for cosmoline. . . . I hope you all understand that I withdraw the theory that cosmoline can be imitated by combining neutral oil with paraffin. That does not furnish cosmoline. You want the best lubricating oil."

The impetus for work on the hydrocarbon composition of petrolatum continued to come from the effort to manufacture a product from raw materials other than those available only from Pennsylvania crude oil. The most important investigation was that on Engler and Bohm[10] in 1888, who studied the product obtained from the distillation residue of Ropa crude oil, produced in Galicia. They prepared petrolatum by (1) dissolving the residue in petroleum ether, filtering the solution through charcoal, distilling the filtered solution and obtaining petrolatum as the residue, and (2) filtering the residue through charcoal and distilling the filtrate, again obtaining petrolatum as the final residue. These procedures were evidently patterned after the commercial procedures which were then, and are still, in use. The crude petrolatum was subsequently refined—again using the same general methods employed on a large scale—by repeated filtration over charcoal. The filtered product was fractionated by vacuum distillation. Among the significant experimental findings were the fact that the viscosity of petrolatum is higher than that of blends of paraffin wax and oil, and that the latter show a sharp transition from the liquid to the solid state, while petrolatum solidifies gradually. The extensive work is summarized by the statement that filtered petrolatum contains amorphous solid hydrocarbons, in contrast to the crystalline paraffins in the distillates, and that these amorphous hydrocarbons are similar to those in ceresine. While this part of Engler's and Bohm's investigation has remained of fundamental significance, the theoretical conclusion, namely that crystalline waxes were formed by distillation of the amorphous modifications, is incorrect, and the important structural difference between the paraffinic hydrocarbons in residual products and distillates was not established until a much later date.

The most thorough investigation of American petrolatum was published by C. F. Mabery in 1904,[11] but was actually started in 1898. This investigation was part of a general study, carried out at Case Insti-

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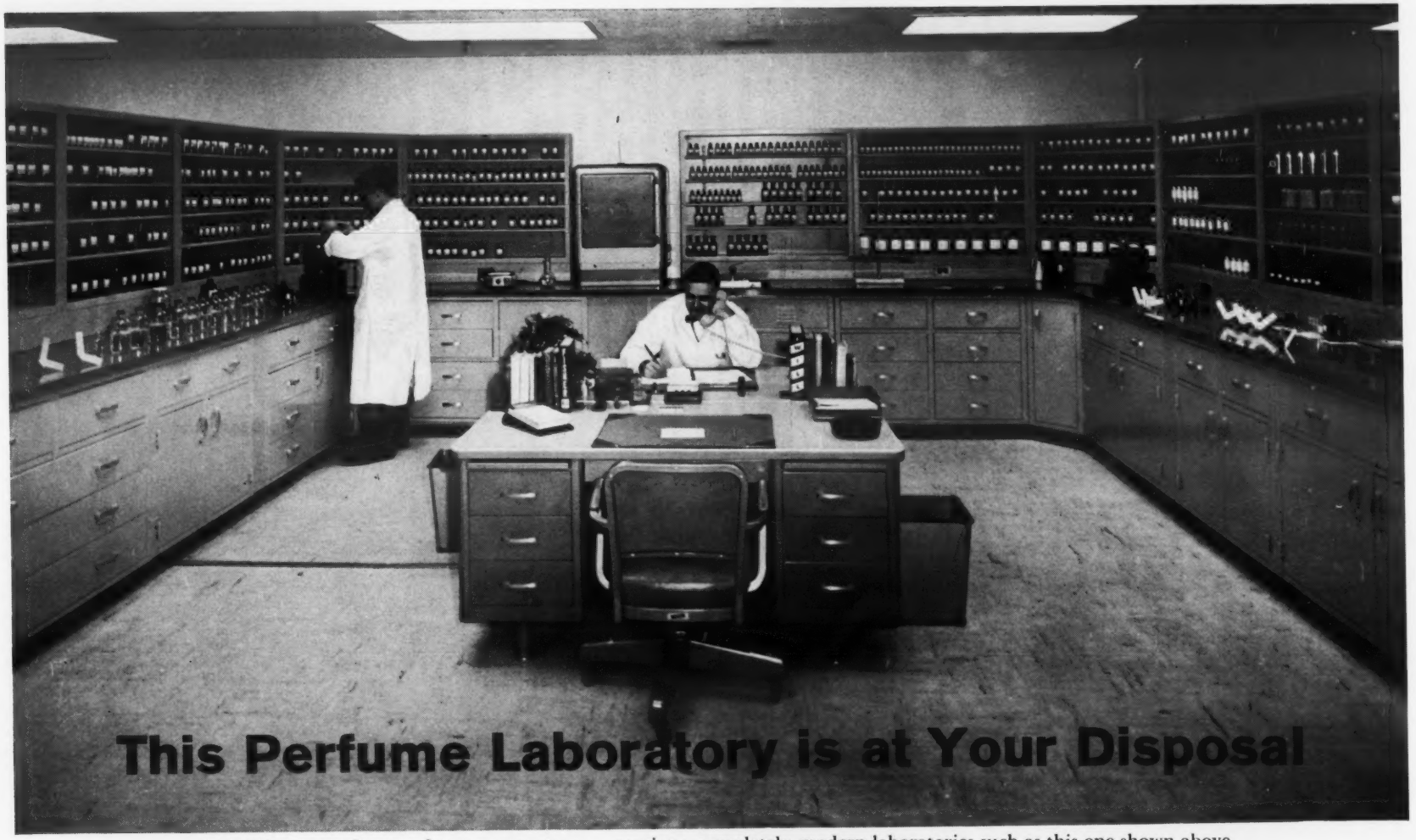
tute of Technology, to determine the composition of petroleum; it included an investigation of the petrolatum raw material, rod wax, as well as of the finished commercial product. It was concluded that petrolatum consists of heavy, high-boiling hydrocarbons (C_nH_{2n}, C_nH_{2n-2} and C_nH_{2n-4}) and solid paraffins; the solid hydrocarbons were assumed to be present in such a concentration as to form a saturated solution in the oil and provide a slight excess of solid phase for the formation of an emulsion of high consistency.

No specific investigations of the composition of petrolatum have been published recently, but our knowledge of the product has been advanced substantially by studies of the solid hydrocarbon constituents. They are actually being isolated from petrolatum stock on a large scale every day, since they represent the commercial microcrystalline wax used extensively because of the flexibility and adhesive power of the medium melting-point grades and the hardness of the high melting-point (200° F.) grades. The structure of these waxes has been established as highly branched paraffins, together with paraffins substituted with naphthenic and aromatic rings. Consequently, petrolatum is a colloidal system of nonstraight chain solid hydrocarbons and high boiling liquid hydrocarbons, in which most of the liquid hydrocarbons are held inside the micelles.

While manufacturing processes have changed, petrolatum has remained remarkably stable, as far as its properties are concerned. This can be seen clearly from a comparison of the properties of petrolatum specified by the U. S. Pharmacopoeia in 1880 and those prescribed by the latest edition (1960). The main difference in the specifications lies in the inclusion of a color test and of numerical limits for the gel structure of the product, which is measured by determining the depth to which a special cone penetrates a sample under standardized conditions. This consistency test was first established by the American Society for Testing Materials in 1923, or just about 50 years after petrolatum was first produced. Until that time the consistency of petrolatum was determined by the resistance it offered to the probing finger of an experienced tester; the first attempts to express this property in objective terms replaced the finger by a standardized closed cylinder (F. W. Breth, Sonneborn Chemical and Refining Corp.). During the last 15 years further work has been done to convert into reproducible laboratory procedures empirical quality evaluations, for instance, ductility, bleeding tendency and gloss.[12]

In the 90 years of its history, the manufacture of petrolatum has moved from the realm of secrecy into that of sound technology and it is no longer possible, as in the early days of the industry in Pennsylvania, to barter the secret of petrolatum manufacture for the labors of a craftsman needed for repairing one's roof. On the other hand, the position of petrolatum in pharmaceuticals, cosmetics and food processing and



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SUGAR ESTERS IN COSMETICS

(Continued from page 34)

in the fat chains, from C_{12} to C_{18}. This property is being utilized in the preparation of highly effective detergent lotions and creams.

Foaming power. The foaming power is generally low. The advantage of having only a very limited amount of foaming as compared with the ordinary emulsifiers used in the preparation of cosmetic products is another feature of importance. With the sugar esters, the higher the number of carbon atoms in the fat chain, the less foaming, solubility in water and hygroscopicity, while the stability of their emulsions with fats increases. Sucroglycerides act in the same way, but with slightly larger amounts.

Cutaneous action. The major criticism of the surfactants ordinarily used, especially with regard to their detergent action and their behavior on the skin, consists of their being too energetic in removing the entire lipid content of the skin.

The sugar esters and sucroglycerides, even in their pure form, have never caused any inconvenience of this kind and also have the characteristic of leaving a very thin lipid film on the skin, which leaves a softness and smooth feeling on the skin. These compounds are completely nontoxic.

SKIN MOISTURIZING

(Continued from page 40)

hygroscopic components. When the hygroscopic components of callus were isolated,[8] and mixed with glycerin the water uptake of this mixture was merely the sum of its components. On the other hand, within two days at 100 per cent humidity, the water uptake of the insoluble residue (keratin) rose more than threefold over the untreated control specimen (64 vs. 18 mg./100g.). Indirect evidence for assigning the potentiation of water binding to the keratinous portion of the horny layer, comes also from results obtained with psoriatic scales (Table 1, Exps. 4, 5 and 6). The soluble portion of these scales is deficient in water binding ability,[8] yet the scales display the same potentiating effect as callus.

Glycerin had a potentiating effect on the water uptake of powdered human nails, while it had no influence on whole nails, on powdered or intact hairs.

At lower environmental humidities it is difficult to demonstrate the effect of glycerine upon the water uptake of callus. The reason is that the water holding ability of callus declines precipitously at lower relative humidities. For example, at 75 per cent relative humidity the water uptake of callus is only one-third of that observed at 97 per cent humidity.[3, 9] At 56 per cent relative humidity the water uptake is even less (10 per cent). However, one could maintain high relative humidities on the skin surface with varying mixtures of glycerin and water. In preliminary experiments, normal and pathologic horny layers, when incubated at 32° C. and 0-50 per cent relative humidities with 1:3 to 1:5 mixtures of glycerin and water, retained significantly more water than control specimens which were incubated with water alone.

Effect of Glycerin on Water Diffusion

Our findings strongly suggest that glycerin affects transepidermal water diffusion in a way which is unrelated to its hygroscopic qualities. The best interpretation of our results is that glycerin forms an occlusive film, preventing the evaporation of water from the skin surface. The suppression of insensible water loss by occlusive films has been reported by previous authors.[6, 10]

The greater suppressive effect of glycerin on water diffusion in the "more permeable" skin specimens is probably due to the fact that in some pieces of skin the barrier may have been damaged and therefore the occlusive effect of glycerin was more pronounced in these specimens. Should this be the case, the beneficial effect of glycerin on chapped skin would find a ready explanation on this ground alone.

Our findings are at variance with the data of Powers and Fox.[11] These authors found a 41 to 43 per cent increase in water loss from living human skin after the application of glycerin. In assessing this discrepancy, it must be kept in mind that the experimental conditions set up by these authors differ from ours in at least three important respects:

1. Their measurements were done *in vivo*, ours *in vitro*. Although the rates of passive diffusion in these two systems are comparable,[2] the possibility must be considered that certain vital functions which contribute to water loss, such as delivery of sweat to the surface, may be influenced by glycerin *in vivo*, while they are absent in dead skin.

2. Powers and Fox's experiments were completed within two hours, ours lasted for several days. It is conceivable that glycerin may enhance water diffu-

(Continued on page 102)

Management Forum

BY FRANCIS CHILSON, Sc.D.
PROFESSIONAL ENGINEER

The Trade War

We are engaged in a trade war with friends and enemies alike, and it is a war in which no side will give quarter. It is a coldly ruthless war and year by year it will increase in intensity. Pitted against us we have Japan, Germany, England, and Russia in that order. It is true that they are fighting each other too, but we are their common industrial enemy because of our size and power, and they, collectively, are ours. And we are fighting this war with too many obsolete weapons. We are fighting, especially in the drug trade, with factories that were obsolete before the Great War; we are fighting with much equipment that is old and obsolete.

Japan has new weapons: new plants, new machinery. So has Germany; so has Russia. We destroyed the plants of Japan and Germany during the war, and the Germans destroyed many Russian plants. After the war we lent them money to rebuild, and we taught them our industrial techniques. So now, with new plants, new machinery, new techniques, and labor costs that are a quarter of ours they are pitted against us for world trade.

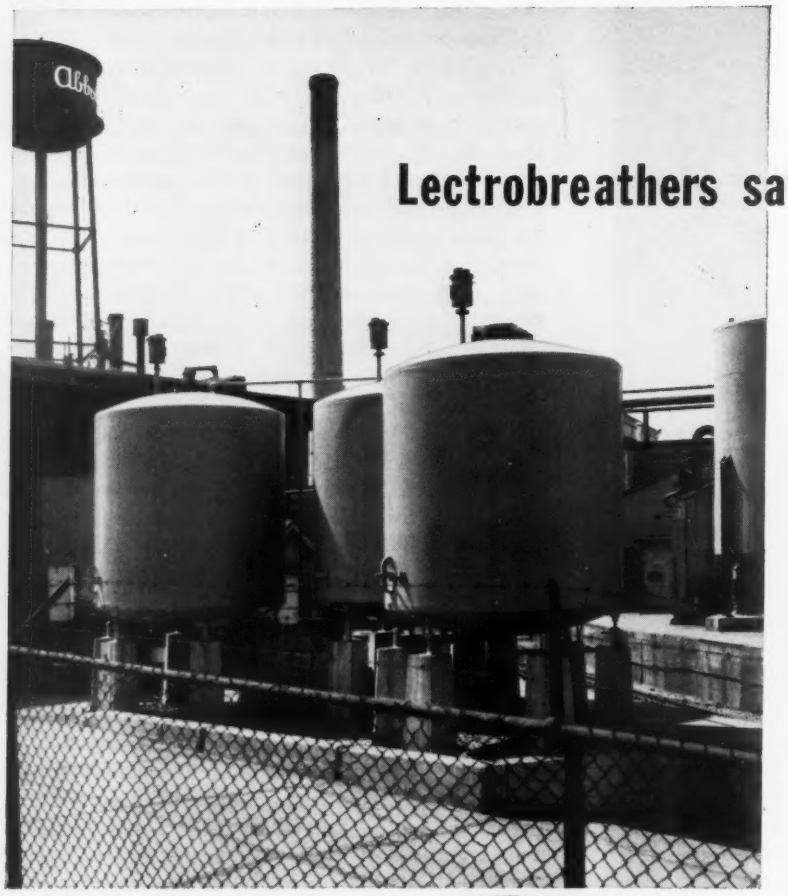
England is somewhat on a par with us. Unfortunately for her, her industrial plant survived the war and is now almost completely obsolete. It's worse than ours. At the moment, the English are screaming about the loss of supremacy in the trade that was once their pride and joy: shipbuilding. The Japanese and Germans have taken most of that trade away from them. But the English still have an offsetting advantage: their labor rates are still a third of ours. This won't last long. England is still union-ridden and in general handles labor with something considerably less than average efficiency. But, here and there throughout industrial England, there are examples proving that, when put to it, English plant, equipment, and labor efficiency can match the best in the world. Even so, the instances are not numerous. They are still the exceptions and must become the rule.

Russia still has made no serious impression on international trade. However, her plants and her equipment are new; she is adapting our methods to her problems and is educating technicians to run her plants in numbers that put the U. S. and England to shame. Russia must be reckoned as a trade enemy of enormous potential power. The time to meet the threat of Russian competition is now; not when we are seriously confronted with it. Then it will be too late. Let no one be contemptuous of the quality of Russian products. Last year Pfizer's foreign agents picked up in Hong Kong samples of tetracycline and terramycin made in Russia. Pfizer examined the samples and reported that, while the packaging was not as good as ours, the products were. So, let's not feel too complacent about the future of our industry in international trade.

Before the war, Japan had an international reputation for being able to copy any product and to counterfeit many in all respects save quality. The Japanese have lived that canard down. Japanese are turning out products now that are regarded, in some cases, as the best in the world, and in others as good as the best. Now the Japanese emphasis seems to be on quality, hence, she is already a powerful economic adversary, even in our domestic market.

If the U. S. desires to hold its present place as the foremost industrial nation in the world, we must increase plant efficiency, office efficiency, distribution efficiency, and inventive efficiency to a degree that will offset foreign labor cost advantages, while maintaining our present labor rates and even increasing them as we concomitantly decrease the length of the work week. The unions have too powerful a grip on the economy and political set-up of this country to admit a thought of the possibility in the future of reducing wage rates or lengthening working time for the same wages.

In the drug industry we have always been smug and complacent about the threat of competition here or abroad, because we always have enjoyed such a



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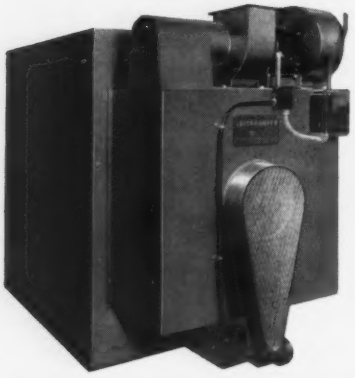
Lectrobreathers safeguard chemicals in storage—permitting carload purchases

● Buying liquids in tank car lots saves money. But profits are quickly washed out if storage tanks are allowed to inhale wet air as they breathe, contaminating their contents.

Abbott Laboratories solved this problem by installing Lectrobreathers on many of their outdoor and indoor storage tanks. Now, as pressures vary and those tanks draw in outside air, that air is DRY. The original high quality of their contents is preserved.

Lectrobreathers® and Lectrodryers make certain that any tank, little or big, breathes only DRY air. For help in selecting the equipment you need, write Pittsburgh Lectrodryer Division, McGraw-Edison Company, 309 32nd Street, Pittsburgh 30, Pennsylvania.



Where volumes of air are large, as in a tank farm, a Lectrodryer* serves as a breather. Its DRYing-reactivation cycle is continual, so it stays right on the job.

◀ A tank breathes freely as air passes through the Activated Alumina adsorbent and is dried DRY. When a Lectrobreather needs reactivation, it is lifted off and a spare takes its place.

wide margin between manufacturing cost and net selling price. But I say to you, those days are over. The next ten years will provide for us in the drug industry a grim example of the survival of the fittest. As big as our country is, our industry cannot continue profitable operation on the volume of the home market alone. We must intensively develop foreign markets. Already some of our companies are reporting in their annual statements that as much as a third of their net profits are being earned abroad. We must protect that earning capacity. And the only way we can do it is to increase plant, office, and distribution efficiency everywhere.

The Kefauver Hearings

One curious aspect of the Kefauver hearings is that none of the big guns who testified mentioned (and if they did mention it, they certainly didn't emphasize it) the fact that roughly half the consumer's dollar goes to the retail druggist and to the wholesaler. Neither did anyone mention the fact that hospital charges for prescription drugs are often two or three times current retail prices. Nothing was said about the drug retailer who often adds 50 or 100 per cent to the suggested retail price of prescription items.

Another curious thing is that no one admitted that some drug prices are far too high, nor offered a pricing formula that would be fair to all concerned. Most of the witnessess seemed to feel that drug pricing was a matter of the divine right of kings. No one suggested that, in the interests of the public, the whole field of medical care should be investigated: drug prices, doctors' charges, hospital charges and retail pricing, in order to develop a formula that would enable all concerned to continue performing an indispensable service to the public at a fair price and a reasonable profit all around. This should be done voluntarily and at once by the trade and not by the beaurocrats of the government—as, unfortunately, it probably will be.

Office Plantings

Some years ago I suggested in this department a method of landscaping for plant concealment as a measure of protection in time of war. In that note I pointed out how, by roof plantings, the outline of a plant could be blended into the surrounding landscape. This elicited a lot of interest but nobody has done anything about it yet. There is, however, a growing interest in internal plantings to soften the harsh outlines and bare vistas of modern architectural design. A lot of the office buildings and banks in New York and other places have indoor plantings as part of the decor.

We did this in the design of the Colliere factory in Mexico City and also in the Nicholas (Aspro) plant in Australia. In all cases where plantings have been used indoors, beneficial results have been achieved. People like plants whether they are employees or visitors. The time may come—and why not—when we will use evergreen plants such as cedars as partitions between offices.

Education for Democracy

In a recent issue of *The Saturday Evening Post*, Henry M. Wriston, former president of Brown University, outlined the fundamentals of the educative process so well that I am quoting his words for you to ponder:

"All these considerations suggest the true character of education; it is the life-long process of growth—physical, mental, moral, aesthetic. It is not primarily training, though training is part of it. Central are the stimulation and the discipline of the individual. This does not require every individual to be a scholar. The wisdom of the world is not confined to the learned; often it is found in the perceptive experience of those whose schooling has not carried them into 'higher education.' Their shrewd insights on public as well as private matters are part of the historical record of progress.

"There is no such thing as 'mass education.' Every use of the phrase is a denial of a vital reality; education is a wholly individual process. The life of the mind—despite all pressures to invade it—remains a private life. It occurs in each person uniquely. We do democracy no service in seeking to inhibit thought—free, wide-ranging, hazardous.

"The American system is built upon the thesis that conformity is not the way to progress. Without independence of mind there is no freedom for the individual. Therefore education should never overaccent 'adjustment.' Whenever that emphasis is dominant, it is a deliberate effort to defeat the infinite variety that enriches society and the world.

"The educative process should never be distorted by the nation's 'need' for scientists, or engineers, or doctors or any other specific profession or skill. Whenever counseling and curriculum stress vocation primarily, they underestimate needs just as vital, though not statistically conspicuous. The nation needs philosophers, poets, artists, critics and a thousand other sorts of people—in numbers which 'manpower analyses' can never estimate."

Chemical Plant Flooring

It always has been a difficult problem to find a suitable surface material for chemical plant floors that will withstand acids and alkalis and yet bear the weight of fork trucks. Acid- and alkali-proof bricks set in special mastic have been used with excellent results, provided no heavy trucking is done over them. Oddly enough, I have seen such bricks set in ordinary cement, and in no time at all the floor goes to pot through the dissolution of the cement joints. The Ceilcote Company of 4832 Ridge Road, Cleveland 9, Ohio, makes a flooring material known as Corocrete, which seems to be the answer to difficult floor problems. It looks like concrete and produces a hard monolithic surface. It is acid- and

alkali-proof; it has a water absorption of only 0.3 per cent; it has a tensile strength of 1,300 psi and 9,000 psi compressive strength. It may be applied over an old concrete floor after thorough cleaning, and it need be spread only one-half an inch thick.

The same company also makes a product known as Coroline, which is used over glass-fibre fabric to corrosion-proof vertical surfaces, pipes, columns, and tanks. When you write to these people, be sure to mention this magazine.

Anodic Protection

If you have any rust problems in water-storage tanks, get in touch with the Brown Instruments Division, Minneapolis-Honeywell Regulator Company, Wayne Avenue, Philadelphia 44, Pa., and ask them to send you the dope on the Anotrol corrosion protection system. It really works.

On Shortening Conferences

Americans waste so much time—and therefore money—in endless conferences, I propose doing something about it. So many people say so little in so many words, that I long ago concluded that the tongue is the only muscle that never gets tired. It works even though it is limp.

Now I propose to start a school to teach executives the sign language. The sign language requires brevity and precision. A conference conducted in the sign language would be free from irrelevant digressions and interruptions. It would be brief, too, because fingers get tired. They are not like the tongue, which never tires.

Having done a bit of figuring, I estimate that the use of the sign language would save every executive in the U. S. 67 per cent of his time and result in a saving to American business of $1,724,327,635.47 annually. I should get 5 per cent!

Increasing Secretarial Efficiency

It always has been a cause of wonder to me to see how little has been done to increase secretarial or stenographic output. Take paper, for instance. How much attention has been paid to that, in its effect on the typist's efficiency? Most of the paper selected for letterheads and invoice forms is selected by those who know least about it from the typist's point of view. Typists of all grades make many typing errors of one kind or another that have to be corrected. The speed with which the correction can be made depends on the quality of the paper and the nature of the eraser, and, of the two, the paper is most important. I've seen typists who could easily type 100 words a minute spend two minutes making an erasure. Sometimes the effect of erasure on certain papers is so conspicuous that the typist does the whole page over again, using, of course, another sheet and losing time as well. Most typing papers are so soft on the surface that the type bites into them, making erasure difficult, time-consuming, and expensive.

I ran across, through Sun Printing Company of Pittsfield, Mass., (the outfit that prints my letterheads) a type of cotton fibre paper called Rase Rite Bond, which is absolutely marvelous because of the speed with which erasures can be made on it and its ability to withstand erasure blemish. Public stenographers, who do my letters when I am on the road (which is a good share of the time), all comment on the excellent quality of the paper. Inasmuch as my stenographers must all take my dictation directly on the machine, the ease and speed with which corrections can be made is an important time saver to me as well as to the steno.

Creativeness

A. F. Osborne, in his book *Creative Thinking*, outlines a procedure to be followed in solving problems. There are three steps: First, define the problem exactly. You'd be surprised how much motion and time is lost by people trying to solve problems before they know what the problems really are. Second, think of a variety of possible solutions, even though some of them seem far-fetched. This is the familiar brainstorming process. It is the process of getting rid of the mental cobwebs and of finding a kick-off spot. Third, evaluate possible solutions until you are sure you've got the right one. That's not as easy as it sounds. Time and costs must be considered.

Professor John Arnold at Stanford University has what he calls "spur questions" in brain-storming sessions for engineering students. The students study an object along the following lines:

Adaptation. Can its basic structure or principle be adapted for other uses?

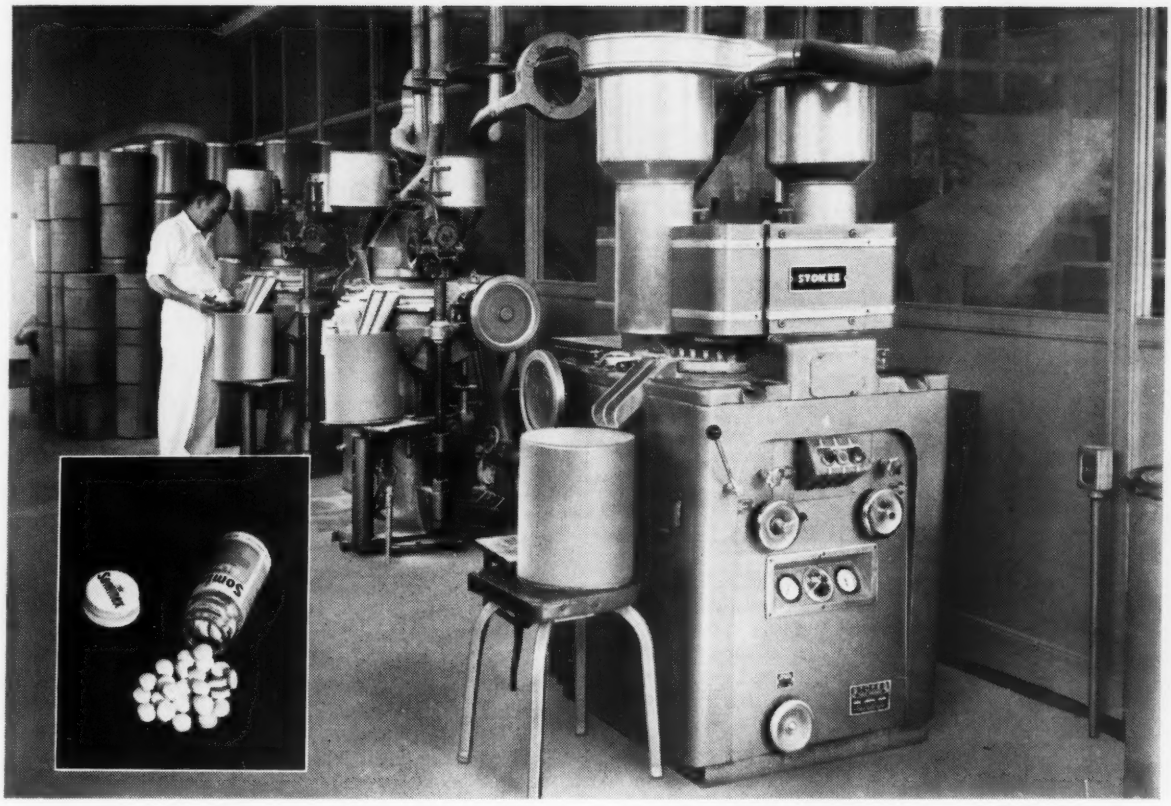
Combination. What can be added to it to improve function, strengthen structure, decrease cost?

Reduction. What can be taken away to improve and simplify it?

Anything that will arouse interest and focus attention will aid in solving problems and promote creative thinking. Years ago the famous naturalist Louis Agassiz used to make his students study the same fish for several days and write down each day everything they observed about it. During the first day the observant student, would identify the fish and list its size, color, fin shapes and number, and perhaps 20 or 30 other items. By the fifth day the lists of data contained two or three hundred items. What were the students learning? How to *look* at a problem.

Vibrator

Automatic Feeder Company, 4752 West Washington Blvd., Chicago, Ill., has developed a portable, electric vibrator, Vibra Pak, designed to move hard-to-flow materials. The new unit keeps small parts, granular or bulk materials moving freely in hoppers, tracks, bins and chutes. Other applications include bulk feeding, parts jogging, screening and packing. Its use eliminates sticking, arching and bridging.



Operator checks Sominex tablets from one of two Stokes multi-layer Model 563 tabletting presses. Stokes Model 540 high speed rotary press (in foreground) is used to make Geritol tablets.

Sominex for restful sleep...

Precisely made with Stokes multi-layer presses

Making a tablet with two distinct layers calls for precision in manufacturing. At Pharmaceuticals Incorporated, Stokes two-layer Model 563 tabletting presses were chosen to assure quality production of sleep-giving, double-tablet Sominex. Operating as long as 16 hours per day, these presses turn out Sominex with exact uniformity of granulations.

One man easily supervises operations of the presses. The possibility of jamming is eliminated through a built-in release in the pressure spring. During operation, both layers can be individually ejected for a weight check. And even after long hours of operation, Stokes multi-layer presses consistently maintain close tolerances and uniform pressures.

Whether your production involves multi-layer, press coating or single granulation tabletting operations, Stokes pharmaceutical experience and function-fitted equipment can prove profitable to you. Write or call your nearest Stokes office for a discussion of your requirements.

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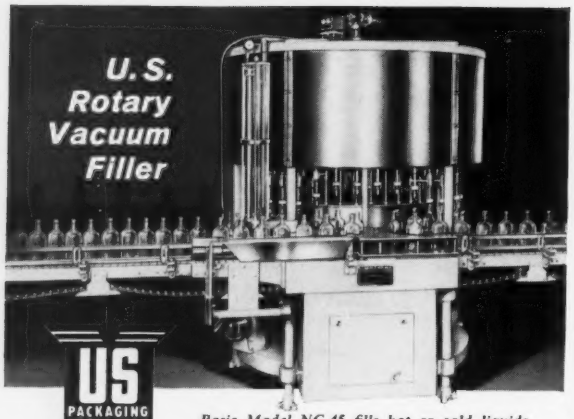

Basic Model NC-45 fills hot or cold liquids into containers up to 3⅜" dia. at 450 p/m

Hundreds in Use

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The name, "U. S. Rotary Vacuum Filler" represents a wide line of models rather than an individual machine. These are basic models that vary in capacity from 16 to 45 filling tubes and are designed for implementation with standard adaptations to serve the individual requirements of each user. *No two machines are ever alike.*

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MODEL B-49 STRAIGHT-LINE VACUUM FILLER. For liquids and semi-liquids. Fills 4 to 9 containers simultaneously. Adjustable for all container heights up to 14". Stainless steel is standard; plastic on order. Discharge conveyor is optional. Write for "Bulletin B-49".

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MODEL B-2 VACUUM FILLER. Fills 2 containers while 2 filled containers are being removed and 2 empties loaded. Handles containers up to 4¼" dia. up to 13" high. Stainless steel construction. Plastic available. Write for "Bulletin B-2".

For All Liquids • All Containers

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Bottle Sorter

Chase Equipment Company, Brooklyn, N. Y., has designed the model BS8 Bottle Sorter primarily for sterile handling of plastic bottles. It can also be used on glass vials.

Washed and sterilized bottles are placed in the stainless steel hopper from which they are automatically fed to the sorting head. This automatically turns the bottles upright, regardless of whether they enter neck first or bottom first, after which they are dropped onto a conveyor or work table. Speeds are variable up to 60 per minute.

Monoscale Filling Machine

Karl Kiefer Machine Company, Cincinnati, Ohio, has designed a filling machine that fills by counterbalanced weight. As the fill nears conclusion, flow rate is automatically reduced to minimize surging or splashing. Spout closing is positive and dripless. All metal parts contacting the liquid are fabricated of stainless steel.

Multi-Pack Machine

Folding Carton Division, Continental Can Company, 530 Fifth Avenue, New York 36, N. Y., has introduced the Jak-Et-Pak Compact 20 for wraparound multiple packaging of cans or bottles at the rate of 20 packs per minute. The semi-automatic machine can be integrated into any production line operating at speeds up to 120 per minute. Placing the carton blank over the bottles or cans is the only manual operation. The machine handles wraparound cartons from 4¼ to 8¾ inches long and from 4¼ to 6 inches wide.

Blist-O-Matic Machine

Wirth-Rhodes Corporation, 1914 W. 14th Street, Chicago 8, Ill., is manufacturing a new machine for automatic handling of blister packaging. Blist-O-Matic features continuous motion, fully automatic card feed and blister-to-card sealing, precisely controlled heat and pressure factors to assure positive seal at all points between blister and card, automatic discharge of completed packages to packing lines or tables, optional conveyor belt length, quick change-over of card or blister sizes, and production of finished blister packages at speeds up to 40 per minute.

Labeler-Imprinter Conveyor

Avery Label Company, 117 Liberty Street, New York City, has developed a labeler-imprinter-conveyor that permits imprinting on pressure-sensitive labels and affixes them to packages in one continuous in-line automatic operation.

Two New Packagers

Bartelt Engineering Company, Inc., 1900 Harrison Avenue, Rockford, Ill., has introduced the Continuous Motion Packager for form-fill-seal flexible packaging capable of producing pouches at speeds of 300

to 600 per minute. Single purpose mechanisms form, fill, and seal at separate stations along the machine.

The Bartelt Vertical Packager for the fabrication of pillow-type pouches operates at production rates of up to 100 pouches per minute. It safeguards against undue distortion of the heat seals and web material through its web-feed system. The web-feed drawdown mechanism operates separately from the seal bars, and superior seals are obtainable, since no excessive tension is placed upon them during the web-feed cycle.

Jar Mills

Process Equipment Division, U. S. Stoneware Co., Akron 9, Ohio, has developed a solution to the nuisance of mill noise in laboratories, or in process plants operating large numbers of mills, namely, a new line of sound-insulated Jar Mills which consist of heavy-gauge, steel fabricated cabinets completely enclosing the jar mill. The jar interiors are fully lined with multiple layers of sound-proofing materials. Special vents of sound-trap type are provided for dissipation of heat generated by the mill jars and electric motors. Rollers are made of conductive neoprene, eliminating static electricity.

Ribbon Blenders

Flacon Manufacturing Division, First Machinery Corporation, 211 Tenth Street, Brooklyn 15, N. Y., has developed the Top-Flight Double Ribbon Blender for the blending of powders, granules, slurries, pastes, and other special applications. The heavy-gauge body in mild steel or stainless steel is rounded with all welds ground smooth, no bolts or screws, or rivets to hold contaminating material. The ribbon assembly is of welded construction, ground smooth, and may be quickly and easily removed for cleaning. The center discharge gate and sanitary seals are tight, dust-proof, and leak-proof.

Precision Mixing Equipment

Machinery and Equipment Division, Superweld Corporation, 6840 Vineland Avenue, North Hollywood, Calif., has a new Super-Mix line of precision mixing equipment, which is available in standard, vacuum, rotary drum, tumbling and coaxial ribbon models. Capacities range from 13 to 250 cu. ft. in carbon or stainless steel construction, with or without jackets. Sanitary construction is available.

Strata-Screen Mixer

Hobam, Inc., Box 91-142, Buffalo 17, N. Y., has developed a new mixer which increases the speed of mixing and blending dry solids. The combination of gentle dispersing action with shorter mixing time avoids the tendency of particle breakdown, thus preserving uniformity of size. It can also blend particles of different weights, without regard to differing specific gravities, and has floor-level loading and unloading. •

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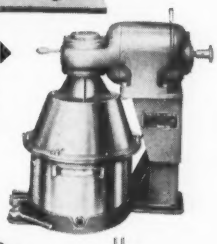
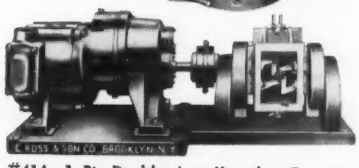
#130EL—2gal. variable speed Double Planetary Change Can Mixer—1 qt. — 150 gal. sizes.

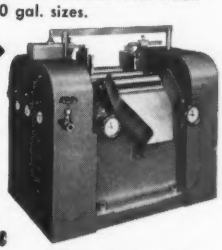
#130EL — 1 gal. vacuum tight Mixer. Available with stainless steel seamless jacketed cans and up to 1 HP exp. prf. motor drive.

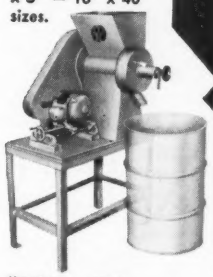




#41A—1 Pt. Double Arm Kneader. Easy to clean, jacketed, and with vacuum cover when required. 1 Pt.—150 gal. sizes.

#52LC—4½"x10". Three Roll Mill with water cooled rolls, one point adjustment and quick roll release. 2½" x 5" — 16" x 40" sizes.





#70—H size 4 Dry Grinding Mill Variable speed drive, with 1" feed size ground between ⅛" and #100 mesh as required. Many sizes including other type Disintegrators, Crushers and Pulverizers.

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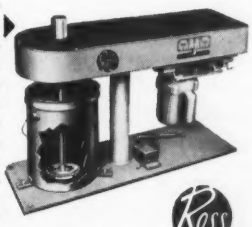

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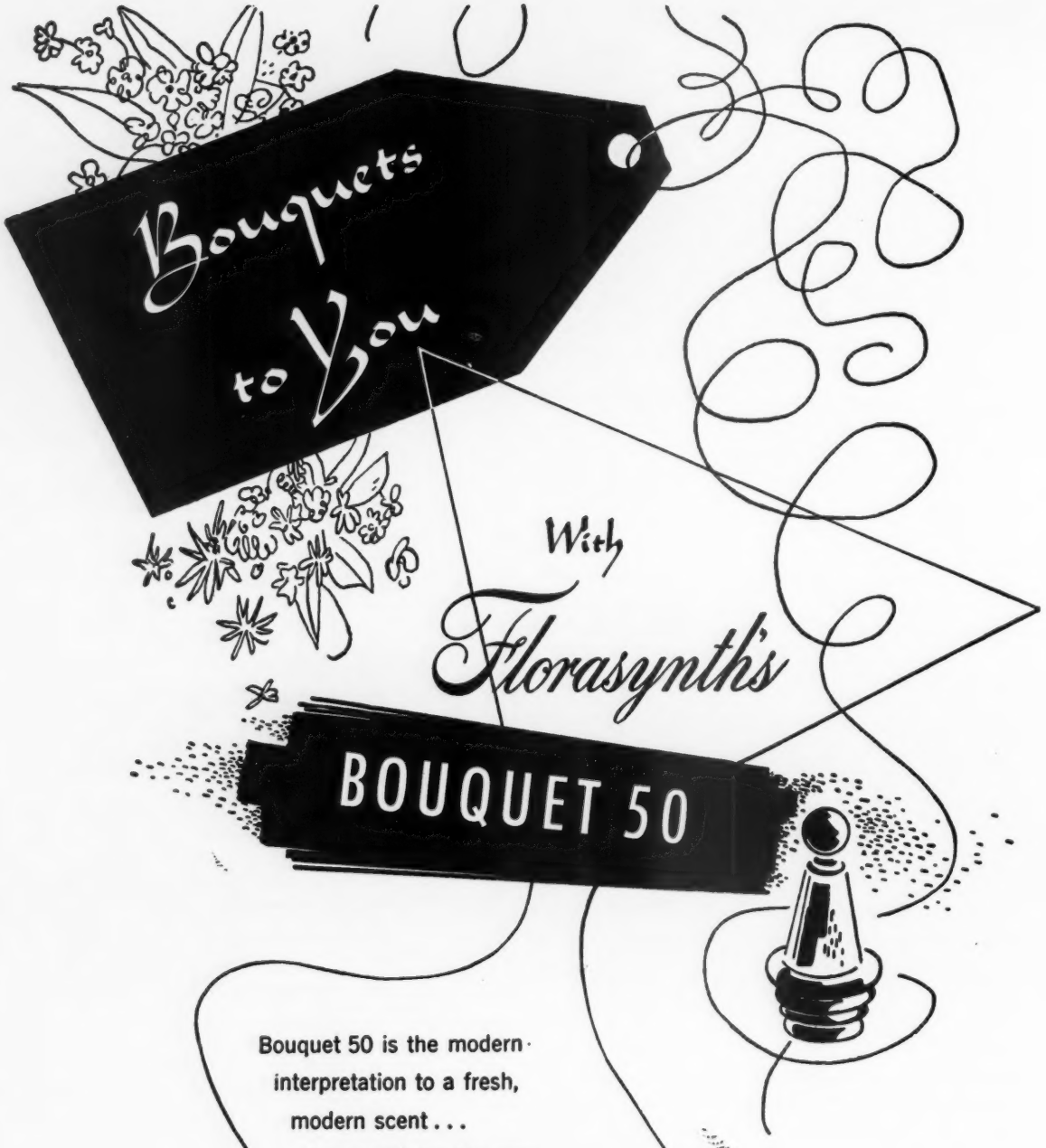

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SALES OFFICES IN PRINCIPAL FOREIGN COUNTRIES

Patents and Trademarks

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

New Patents Commissioner

A new U. S. Patents Commissioner recently took office in line with the fact that the country has a new political administration. The new commissioner, David L. Ladd, a native of Ohio, was a practicing patent lawyer in Chicago before his appointment. Although he is not a Harvard man, Commissioner Ladd does fit in with the New Frontier concept, being 34 years of age.

Although the office of Commissioner of Patents is a venerable one, and the functions of the Commissioner are prescribed by statutes, nevertheless, it is possible for an individual commissioner to make a special impact on the operation of the U. S. patent system. Consequently, it may be of general interest to make note of some of the things Commissioner Ladd has already mentioned in public, as they may indicate what changes, if any, are in the offing.

From these utterances, it appears clear that Commissioner Ladd intends to tackle his problems in a vigorous manner. One thing he is interested in is an increase in the work load of each examiner, which, of course, will mean that the taxpayer will get more service for his dollar. Increased efficiency will be sought by a two-pronged attack. One is to try to reduce the turnover of Patent Examiners, which is now said to be 20 per cent, a monthly average of 16 Patent Examiners leaving the Patent corps. Another way of attempting to increase the output of each Examiner is to try to improve the searching technique. Much thought is being given to mechanized searching methods. Indeed, in some chemical areas this is already being done.

The backlog of cases pending before the Patent Office is still a serious problem. Commissioner Ladd estimates that there are still about 196,000 of such cases. He estimates that it takes an average of seven months for a patent applicant to get his first action, and that only rarely does he get a yes or no answer in that time. For trademarks, he says that an applicant can expect action within four and one-half months.

Of course, nothing these days is done without money. Commissioner Ladd has indicated that Congress is being asked to pass legislation to increase patent fees. Suggestions have been made not only to increase the filing and final U. S. Government fees, but also to institute a tax fee system in order to maintain patents in force, as is done in many European countries, for example.

Controlling Blood Cholesterol

It is now generally known that there is a body of medical opinion which feels that control of the blood cholesterol level is desirable because of adverse effects of high blood cholesterol on the heart, as well as certain aging effects on the body. The late Dr. Joseph Stambul of Philadelphia recently obtained U. S. Pat. 2,980,585 on his solution to this problem, which involves stimulating the reticulo-endothelial system.

Dr. Stambul points out that it has been known for some time that the liver and "thyroid gland are, in some manner, associated with the cholesterol metabolism of the body. It has now been discovered that the liver removes the excess of cholesterol from the circulation and the thyroid gland controls the excretory function of the liver. The excess of cholesterol in the blood stream, after being removed by the liver, is excreted with the bile into the intestinal canal.

"Further investigation has shown that not even the entire liver is operative in excretion of the excess cholesterol but that it is only a certain group of cells in the liver, the so-called reticulo-endothelial cells, otherwise referred to as the Kupffer cells, which are engaged in this function. These Kupffer cells comprise about one-third of the cellular components of the liver.

"The Kupffer cells line the blood channels of the liver and come into direct contact with the circulating blood. Any foreign particles in the circulating blood, including excess cholesterol, are engulfed by the Kupffer cells which then release these particles into the bile to be eliminated with the feces.

"When the Kupffer cells reach their phagocytic limits, that is, when they cannot absorb any more particles, the excess particles remain in the circulating blood for prolonged periods depending on their number and molecular size. However, when the Kupffer cells release the engulfed particles into the bile, their phagocytic activity is reestablished and they can again pick up the foreign elements from the circulation. This process repeats itself until all foreign substances are eliminated from the blood stream.

"The Kupffer cells respond to an excess of free cholesterol in the circulation in a manner similar to

*Richards and Cifelli, Newark 2, New Jersey.

foreign bodies since this excess cholesterol has a similar irritating effect.

"In addition to their phagocytic and excretory activities, the reticulo-endothelial or Kupffer cells also act as transporters of fat. The fat particles in the blood serum passing through the sinusoids of the liver are taken up by the Kupffer cells and transferred to the parenchymal cells of the liver.

"The various fat components, usually found in the blood after the intake of a fatty meal, are of large molecular size and cannot enter the epithelial cells of the liver unless they are first engulfed by the hepatic reticuloendothelial cells and broken down into smaller particles. They are then transferred to the parenchymal cells of the liver where they undergo further metabolic changes. If, however, the Kupffer cells are obstructed by blocking agents or damaged by disease, this function is impaired.

"Obstruction of the Kupffer cells may be effected by the accumulation of lipid particles in the cytoplasm of the cells; these lipid particles consisting primarily of neutral fat, fatty acids, cholesterol, cholesterol esters and phospholipids. Such accumulation may, for example, be caused by conditions associated with persistent and sustained hyperlipemia such as result from starvation, diabetes, etc.

"In normal activity, the thyroid gland acts on the Kupffer cells in such a manner that the cells are stimulated to release the stored lipids from their cytoplasm, thereby permitting other fat particles to be taken up from the circulation. However, in those cases where the thyroid gland cannot, for some reason, so act upon the Kupffer cells, the cells cannot rid themselves of these accumulated lipids and consequently become blocked and cease taking up the lipids or fatty substances from the circulation.

"Since practically all the cholesterol of the blood is carried by the lipids or, more precisely, by the alpha and beta globulin lipoprotein portions of the lipids, and since these lipids tend to accumulate in the blood when the Kupffer cells are blocked, this results in hyperlipemia and hypercholesteremia. It should be noted that in patients with atherosclerosis, there is an increase in the beta and a decrease in the alpha lipoproteins.

"It has been discovered that thyroid therapy consisting of the administration of the total thyroid secretion (thyroglobulin) acts on the Kupffer cells to release the stored lipid particles and take up new lipid particles from the blood stream, thereby reducing the concentration of the total lipids in the blood stream, as well as decreasing the cholesterol level of the circulation. However, thyroglobulin also produces toxic effects on the body and therefore its use as a lipotropic agent is limited.

"Thyroglobulin is a protein of very high molecular weight, ranging from 350,000 to 400,000, and it is made up of fifteen different amino acids. Thyroglobulin may be broken down by various methods of hydrolysis into two organic iodine containing fractions: Thyroxine fraction and diiodotyrosine fraction. The latter is free of thyroxine. The end product of such hydrolysis may be in the form diiodotyrosine peptides, diiodotyrosine peptones and diiodotyrosine in amino acid form. The molecular size of diiodotyrosine peptide is the largest, whereas the diiodotyrosine amino acid molecules are the smallest.

"Because of the difference in molecular size of these thyroid iodine compounds, there is a difference in their respective physiological activities. The diiodotyrosine molecules in the amino acid form are very small and are rapidly eliminated from the circulation by the kidneys, thus producing an insignificant effect on the Kupffer cells. The peptones of diiodotyrosine, which are somewhat larger in their molecular size, remain in the circulation for somewhat longer periods but even these periods are insufficient to produce the desired effect upon the excretory function of the Kupffer cells. The diiodotyrosine peptides, which are of much larger molecular size, cannot be eliminated by the kidneys and therefore remain in the circulation for prolonged periods because they are only slowly eliminated from the blood stream by the liver. Thus they produce a continuous and prolonged stimulating effect on the Kupffer cells of the liver, resulting in greater excretion of the excess cholesterol from the circulation."

Although both of the thyroid iodine components (the thyroxine and the nonthyroxine fractions) produce a reduction in the cholesterol level of the blood, the thyroxine fraction causes a toxic effect on the body, whereas the diiodotyrosine fraction does not indicate any toxic effect. Therefore, Dr. Stambul's investigation is concentrated on the nonthyroxine fraction of the thyroid as a lipotropic agent—an agent which reduces the level of cholesterol, as well as other lipids of the blood, in individuals with hyperchoesteremia and/or hyperlipemia, to prevent or delay development of atherosclerosis.

Dr. Stambul's invention overcomes the above difficulties by providing a ". . . diiodotyrosine compound, namely diiodotyrosine polypeptide in colloidal suspension. This colloidal suspension cannot be excreted by the kidneys because of the large size of its molecules. The only organ of the body which is capable of removing it from the blood stream is the liver. However, the excretion of the colloidal diiodotyrosine polypeptide by the liver is far slower than the excretion of diiodotyrosine in amino acid form by the kidneys. As a result, the diiodotyrosine polypeptide particles remain in the circulation for sufficient periods of time to produce a prolonged and sustained physiological effect on the Kupffer cells. In this manner the polypeptide produces a continuous and repeated stimulating effect on the Kupffer cells, thereby increasing the rate of elimination of the excess cholesterol particles from the blood stream and reducing the cholesterol level thereof.

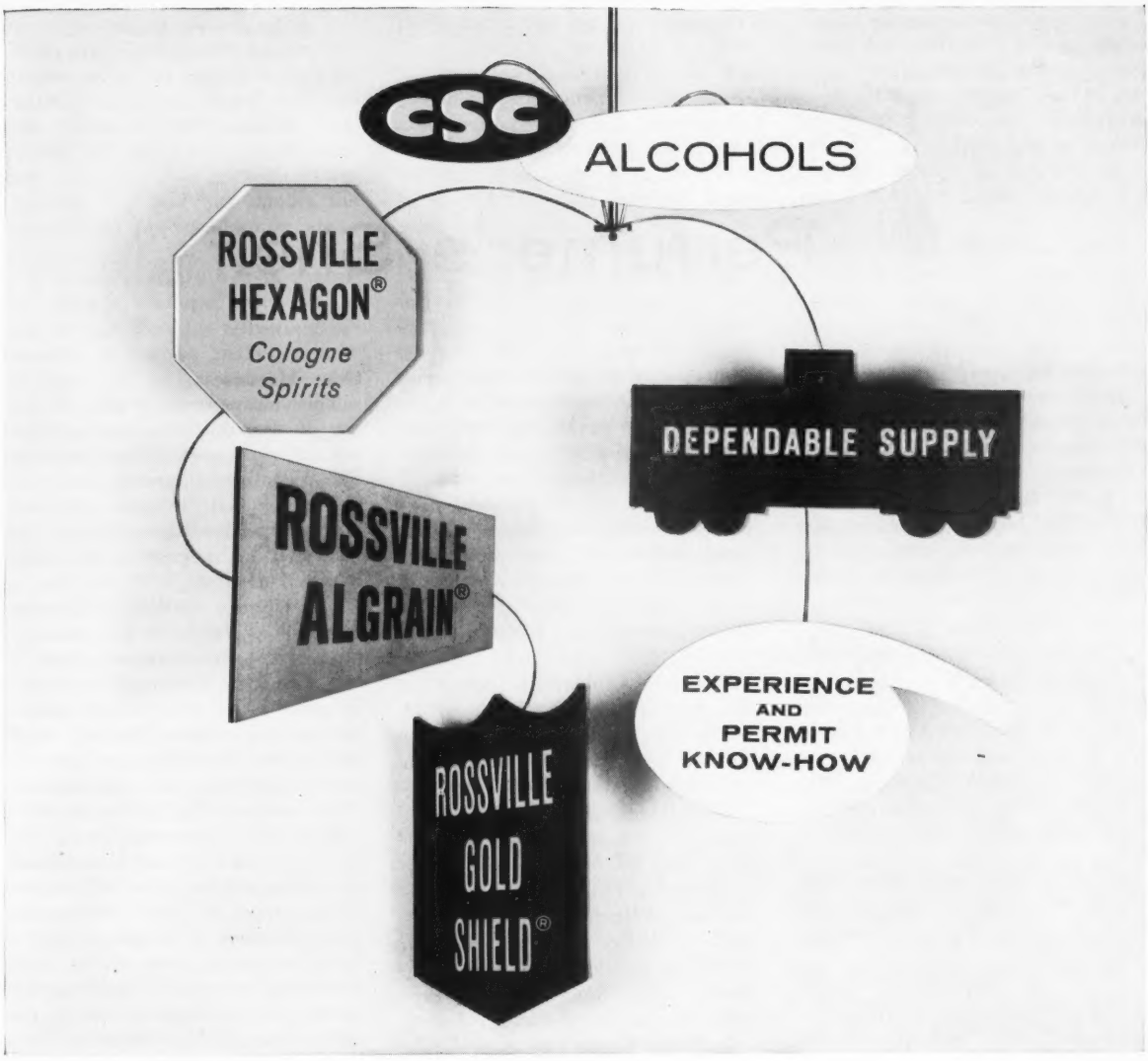
"It has been found that even small dosages of diiodotyrosine polypeptide are extremely effective in reducing the blood cholesterol level. . . ."

Recent Trademark Rulings

The following rulings are believed to be of possible interest. They are rulings of the Patent Office Trial and Appeal Board (TAB) or of the U. S. Court of Customs and Patent Appeals (CCPA).

Uni-Pac vs. Unipak. The use of Uni-Pac on storage battery assemblies will not lead purchasers to think they have the same source as Unipak plastic bags used for resinous materials having principal

(*Continued on page 128*)



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Perfumer's Shelf

Sassafras Oil Yield

Brazilian sassafras oil is obtained by steam distilling chips of *Ocotea pretiosa* (Nees) logs. The tree grows abundantly in the forests of the Itajai River watershed at an altitude of 600 mts. Oil of *Ocotea pretiosa* has erroneously been called oil of *Ocotea cymbarum*, under which designation it has been imported into the United States.

This study of the sassafras laurels of southern Brazil by T. R. M. Mollan (*P. & E. O. R.* 52: 284, 1961) seeks to answer some of the following questions:

Sassafras wood occurs in three different colors, very dark brown, brown and yellow bands and yellow.

(1) How does the oil differ from one colored wood to another in regards to yields and physico-chemical properties?

(2) Do old logs and roots yield normal oils?

(3) What kinds of oils do the leaves and bark produce? This is of importance in the economy of future reforestation with *Ocotea pretiosa*.

All botanical material used in this study came from the township of Ituporanga, State of Santa Catarina, Southern Brazil.

It was planned to study the yields and the principal physico-chemical characteristics of the essential oils obtained from the heart wood and sap wood of the logs of dark brown, brown and yellow bands, and yellow varities; the branches, bark, root and leaves.

Moreover, old logs and branches of sassafras left on the fields as the land was cleared of virgin forest, were chipped and distilled. The yields and physico-chemical properties of the essential oils were determined.

The wood was chipped and the bark was rough cut in a knife-mill prior to being steam distilled in an all glass still at atmospheric pressure. The leaves were distilled whole. All distillations were carried to exhaustion of the material's essential oil content. The condensed steam and essential oil were separated in a glass receiver, which permitted separation of oil of specific gravity greater, and less, than that of water.

The results obtained show that the yield of oil is greater from old trees (dark brown wood) than from younger trees (yellow and brown banded and yellow woods).

The yields from trees felled some years ago, are of the same order as those from trees recently cut down. Since a tree felled some years ago loses water continuously until it attains conditions of equilibrium as regards its humidity the above mentioned similarity of yields also signifies loss of oil on natural drying out. There was an appreciable change in the optical rotation, however, the safrole content of the oil remained practically the same.

The yields of oil from the root bark and the trunk bark are much greater than those from the respective woods, however, with lower safrole contents, there appearing in the bark oil small quantities of cineole and camphor.

The shade-dried leaves show a yield of oil of the same order as the log wood. The oil separates in the receiver in two fractions, of which the more dense than water one has an appreciable safrole content. The less dense one contains little safrole and it is colored by azulene.

Such results show that a greater yield of oil per tree could be obtained from a tree recently cut down, and distilling, besides the log wood, the branches, leaves and bark.

Odor Memories

This topsy-turvey world, in an era of dynamic development, has not entirely passed the perfumer by. For a number of reasons, the modern professional perfumer is finding increasing difficulty in remembering what many good, natural oils should smell like.

The number of odors that a perfumer must retain in his memory has enormously increased over the last decade or two, with variations in natural oils from various localities, new aromatic chemicals, and specialties. Furthermore, politics and history have altered the natural origin and availability of many oils.

How many perfumers still remember the odor of the fine original star anise oil or cassia? With the disappearance of these products in the Communist upheaval, perfumers have become accustomed to such substitutes as cinnamic aldehyde for cassia and synthetic anethol for anise. Many of the younger perfumers have never had the opportunity to smell, much less remember, some of the loveliest oils used in perfumery.

The vetivert oil of yesteryear, notably that of Java and the Bourbon islands, was standard in many famous formulations. Today the vetivert of Haiti has largely replaced these others, with a new note generally considered not as fine and lacking the warmth and intensity of the Java and Bourbon oils.

Production of ylang ylang in the Philippines has almost ceased since the war, when the Japanese destroyed the stills and many of the trees. Ylang ylang is a costly crop for hand labor and although a very small amount dribbles out of the Philippines, Manila ylang ylang is now practically a thing of the past. Most of our oil now comes from Nossi Be, the Comoro Islands, and

Mayotte—oils of good quality, but in no way comparable to the fine Manila oil of pre-war days. Just recently a prefumer stated that the ylang ylang of today lacks the full-bodied flowery note of the Manila, and that three great perfume houses would willingly pay double the price to get pre-war Manila ylang ylang.

We were recently told of a famous French perfumer who uses a special technique for refreshing his memory before he makes a new purchase. As an example, when a new bergamot crop comes onto the market, he imports a case of the fruit. He macerates the peel of the fruit and places it in alcohol. He also does this with lemon, orange, and the oleoresins, especially oak moss. These samples are kept for a year and then replaced by fresh material. Variations on this technique should be considered, as well as limitations. For instance, bergamot fruit, because of government restrictions, may not be brought into the United States. The oils mentioned above give useful samples for a year; other oils, however, such as vetivret, patchouli, and sandalwood, improve with age and a carefully preserved and aged sample would be an unfair basis of comparison with a new oil.

Chemical and physical analyses have been steadily encroaching on the perfumers' duties in determining product quality. When perfume is an essential part of the quality of a preparation, a competent perfumer must be available, with the understanding that no instrument can replace his educated nose in evaluating quality, and particularly in detecting slight changes. For this reason, it has become a challenging problem in prefmery to provide means by which the perfumer can maintain a collection of true odor products to aid him in order recall.

Piperonyl Propanal

British Patent No. 841,921 has been issued to Polak & Schwarz Int. N.V. for 2-methyl-3-(3',4'-methylenedioxyphenyl) propanal as a useful and lasting perfume ingredient. A blotter moistened with the compound containing 0.1 per cent of an antioxidant after two months at room temperature in the air still has the same perfume character and strength. The compound can be prepared by various synthetic methods. As an example, iso-safrol is made to react with formaldehyde, the compound submitted to hydrogenolysis and the product oxidized or catalytically dehydrogenated to convert the alcohol group to the aldehyde. The simplest method, however, is the partial catalytic hydrogenation of 2-piperonylidene-propanal. The alcohol which is also formed can be removed, or for less expensive products, since it is colorless and odorless, it may be left in the aldehyde fraction. The following compositions are examples of the use of the new compound.

Cyclamen: 2-piperonylpropanal 50 parts, hydroxycitronellal 12 parts, linalool 4 parts, linalyl acetate 4 parts, alpha-ionone 5 parts, geraniol 3 parts, phenylethyl alcohol 5 parts, musk ketone 2 parts, amylcinnamic aldehyde 5 parts, benzyl acetate 5 parts, terpineol 5 parts.

Jasmin: 2-piperonylpropanal 50 parts, amylcinnamic aldehyde 13 parts, benzyl acetate 10 parts, linalool 5 parts, linalyl acetate 5 parts, hydroxycitronellal 5 parts, heliotropin 4 parts, phenylethyl alcohol 8 parts.

Rose: 2-piperonylpropanal 35 parts, geraniol 18 parts, rhodinol 8 parts, phenylethyl alcohol 5 parts, hydroxycitronellal 5 parts, alpha-ionone 5 parts, geranyl acetate 3 parts, undecylenic aldehyde 1 part.

Cloves

The word "clove" is derived from the French *clou*, meaning nail, which a clove resembles in an extensive review by G. R. Beattie (*S.P.C.* 34: 541, 1961). The clove tree, which is a beautiful evergreen reaching on average 30 to 40 feet, occasionally as much as 70 feet, historic specimens over 100 feet having been reported, is botanically *Eugenia Caryophyllus*, a member of the myrtle order. The cloves are the flower buds picked just before they would open, when they are an apple-green color with a pinkish tinge, and it is only on drying that the deep brown familiar hue obtains. On picking, they are "stemmed"—the buds removed from the stalks cleanly—the Zanzibar maximum for extraneous matters being 5 per cent only. The cloves are examined, the pickers often paid for their work on the spot. The term, *khoker* is used to denote various sub-standard cloves but mainly which green have fermented, or become set again after part-drying and so on. The green cloves are dried and cured on special mats laid on a concrete floor under the hot sun, as a rule, though copra kilns of both the Sandbath and Seychelles types are sometimes used. The stems, containing 5½ to 6 per cent essential oil on full drying, are similarly cured. The crop year is counted from July 1, one year to June 30, the next year, picking normally starting about July and continuing intermittently until the following February. Drying takes 4 to 6 days, the cement platforms being known by the native name, *sakafu*.

Various official standards for cloves in general have been promulgated, some of the chief as under:

F.D. No. 2. U.S.A. cloves. The dried flower buds of *Caryophyllus aromaticus* L. They contain not more than 5 per cent clove stems, not less than 15 per cent of volatile ether extract, not less than 12 per cent quercitannic acid (calculated from the total oxygen absorbed by the aqueous extract), not more than 7 per cent of total ash, not more than 0.5 per cent of ash insoluble in hydrochloric acid.

F.D. Canada. As above, not more than 5 per cent stems, not more than 8 per cent total ash, 0.5 per cent ash insoluble in HCl, not more than 10 per cent crude fibre and not less than 15 per cent volatile ether extract.

British Pharmacopoeia. Cloves—Caryophyllum, contain not more than 5 per cent stalks nor 1 per cent other organic matter. They leave on incineration not more than 10 per cent total ash nor more than 0.75 per cent acid insoluble ash. Microscopical examination should reveal none or few pitted sclerenchymatous cells above 70 in diameter and starch grains should be absent. The B.P. also insists on Clove Oil being distilled only from the buds and not from leaves etc. It has to contain 85 per cent minimum and not more than 90 per cent v/v eugenol, *s.g.* being between 1.047 and 1.060 and ref ind. at 20° C. between 1.528 and 1.537. The oil is soluble in two volumes 70 per cent alcohol.

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Compounder's Corner

Antibacterial Agents

W. Eibel (*Dragoco Report* 8: 147, 1961) lists a number of compounds that are useful antibacterial agents in cosmetic preparations.

Hexachlorophene, 2,2′-methylene-bis-(3,4,6-trichlorophenol), is specifically effective against gram-positive bacteria and is somewhat less effective against gram-negative rods.

Dichlorophene is 2,2′-methylene-bis-(4-chlorophenol) with similar antibacterial action to hexachlorophene, but with somewhat greater fungicidal activity.

Actamer is 2,2′-thiobis-4,6-dichlorophenol, with activity similar to that of hexachlorophene.

S-7 is bis-(2-hydroxy-5-chloropenyl sulfide) and inhibits the growth of both gram-positive and gram-negative micro-organisms.

Anobial, effective against gram-positive bacteria, is 5-chlorosalicyl-3,4-dichloroanilide.

Ketolin H, 2-benzyl-4-chlorophenol, is a highly effective bactericide and is active against certain dermal fungi in concentrations as low as 0.005 per cent.

TMTD is tetramethylthiuram disulfide.

DCMX, 2,4-dichloro-3,5-dimethylphenol, is a representative of antibacterials with a broad spectrum and is effective against gram-negative and gram-positive micro-organisms.

Trichlorcarbanilide TCC, is particularly effective against gram-positive bacteria and causes no discoloration in soaps even in the presence of traces of iron and when exposed to light.

Non-Caking Suspensions

Alfred N. Martin (*J. Pharm. Sci.* 50: 513, 1961) discusses pharmaceutical suspensions, but the recommendations are certainly equally applicable to the formulation of suspensions intended for cosmetic and other uses.

In a suspension consisting of a coarse dispersion of solid particles distributed in a liquid medium, consideration must be given to the properties of the suspended particles and the dispersion medium, and and interactions between the particles and the medium. Major emphasis is to be placed upon a serious problem, that of caking or cementation.

In the suspension, the influence of gravity is constant and little can be done about it, other than alteration of the specific gravity of the vehicle. However, the partcile size can be reduced and the rheological properties of the liquid modified to reduce the rate of settling. Caking cannot be eliminated by these changes, however, and may be aggravated by them. Caking is the aggregation of particles into a solid mass at the bottom of the container. When particles are held together strongly, the clusters are called agglomerates or aggregates, while in a loose, open structure they are called floccules or flocs. If the suspension consists of flocs, these will settle rapidly to form a loosely arranged sediment wtih a large volume, and redispersion is quite easy. When the flocs have been "deflocculated" to indvisual particles, these tend to settle more slowly, but form a dense sediment difficult to redisperse. Dispersing agents, which bring about the deflocculation of a suspension, may increase the caking tendency of a dispersion, while flocculating agents tend to prevent it.

Flocculation and agglomeration are influenced by the surface charges of the particles; when repulsive energy is great, particles do not combine to form loose aggregates and can thus settle into close-packed arrangmeents, with small particles filling the openings between larger ones. Pressure of the particles leads to even closer packing, and eventual adhesion of individual particles to form caked aggregates. Flocculated particles are weakly bonded in suspension and settle rapidly but are less likely to form dense masses.

A flocculating agent is one that partially rdeuces the charge on the suspended particles and permits approach and partial combination into loose flocs. Excess flocculant may reverse the charge ōn the particles and cause deflocculation again into individual particles. For positively charged bismuth subnitrate, for example, negatively charged monobasic potassium phosphate is a flocculating agent, while with negatively charge sulfamerazine, aluminum chloride is an effective anti-caking agent.

For practical application of these principles, further work is required; a flocculated suspension may not cake, but it will tend to settle rapidly. Suspending agents will reduce the tendency to settle, but most of these are charged colloids and may react with the flocculating agent. The charge on the colloids is usually negative, so that negatively charged flocculants may be used, but negatively charged particles require positively charged flocculating agents, which are incompatible with the colloid.

This difficulty may be overcome by coating negatively charged particles with a positively charged monolayer of a high molecular weight amine or gelatin, so that the phosphate ion can be used for flocculation and the negative colloid for suspension.

The final scheme thus consists of coating particles with a positively charged agent, partially flocculating

the particles with a negatively charged agent, and adding a minimum amount of the desired suspending agent.

Oral Neomycin

A rare case of ototoxicity from orally administered neomycin is reported by E. B. Halpern and M. F. Heller (*Arch. Otolaryng.* 73: 675, 1961). The patient received over 600 grams orally during a 4-month period, resulting in a severe bilateral sensorineural hearing loss. Since 3 per cent of orally administered neomycin is excreted in the kidneys, at least 18 grams must have been absorbed. The ototoxicity from parenterally administered neomycin can be produced with as little as 7 grams, hence the ototoxicity from high oral doses can be understood.

Cocoa Butter Substitute

Coca butter is widely used in tropical countries as a suppository base, but its usefulness is lessened by the fact that its melting point lies close to the average room temperature of 28°, with the result that suppositories made from it melt on handling. Sometimes attempts are made to overcome this defect by adding beeswax, but this procedure has two disadvantages; it entails considerable overheating of the cocoa butter, and the mass on cooling may not be homogeneous. Because of these recognized defects, more commonly, suppositories are made without the addition of beeswax, and a solid product is maintained by cooling in a refrigerator.

It was thought by J. S. Robertson (*J. Pharm. Sci.* 50: 21, 1961), that some readily available natural fat with a melting point just below body temperature and well above ambient temperature, but possessing the otherwise acceptable properties of cocoa butter, would be more satisfactory in giving products that would withstand moderate handling without special precautions.

Of the available materials, the published data indicated that Borneo tallow would appear to meet the essential requirements. Borneo tallow, also known in commerce as illipe butter, is the fat obtained from the seeds of certain species of *Shorea*, family *Dipterocarpaceae*. The fats used in this work were obtained from the seeds of *Shorea gysbertsiana* Burck, *Shorea martiniana* Scheff, *Shorea palambanica* Miq. (all from Borneo), and *Shorea sinkawang* (from Malaya).

The fat was melted, with stirring, at either 36.7 or 40° and poured into 15-grain, unlubricated suppository molds. The fat which was heated to 40° was first cooled in a water bath at 20° until transition began, and then poured. The poured suppositories were allowed to set at either 0, 20, or 28° (room temperature). At various time intervals the suppositories were tested to determine whether the fat had returned to its original melting point. Suppositories were also prepared containing 10 and 20 per cent of chloral hydrate. The powdered chloral hydrate (No. 90 sieve) was incorporated into the fiuid fat at 36.7-37° and allowed to set at room temperature. After twenty-four hours, the melting point of the suppositories containing 10 per cent w/w chloral hydrate was 34.8°, and they withstood moderate handling. Those containing 20 per cent w/w chloral hydrate melted at 33.1° and were a little softer

Testing Emulsion Type

Neither the dilution method depending as it does on the fact that an emulsion can be diluted only by the addition of the continuous phase, nor the indicator method, which depends upon the spreading of an oil-soluble dye (e.g. Sudan III) on the surface of an emulsion, are to be recommended as tests for the determination of meulsion type, as they may themselves lead to a reversal in type. In addition, the result is frequently obscure and insufficiently indicative.

Sometimes one can get a satisfactory idea of an emulsion type by spreading the emulsion lightly on a filter paper. Gradually an oil-in-water emulsion tends to release a more or less wide outer band of water at the edges of the patch, whereas a water-in-oil emulsion does not exhibit this phenomenon or, at least, not to the same extent, and the outer edge here may show an oily margin. However, this method is crude and frequently unreliable.

Electrical conductance and refractivity tests though more satisfactory, call for the use of special equipment and, in the latter case, for a fairly involved technique. One must cordially welcome, therefore, the paper by Tronnier and Bussius recently contributed to *Seifen-Oele-Fette-Wachse*. This makes use of cobalt chloride, as indicated in the following extract:

"The test method is based on the color change of cobalt chloride on absorbing or parting with water. For the execution of this cobalt chloride method, circular filter papers are immersed for 2 minutes in a 20 per cent aqueous cobalt chloride solution and then dried on a piece of blotting paper in the drying oven at 60°-80° C., after which they are stored in a desiccator. Through the drying process the filter sheets, which in the moist state are tinged pink, turn blue when all the water has been lost. . . .

"The dried test sheets are stable for an unlimited time in the desiccator, but it is as well to store them away from bright sunlight in order to prevent slight fading.

When the emulsion to be tested is applied to the test sheets, in the case of an oil-in-water emulsion, the color changes and becomes very much lighter in the contact zone, passing from blue to pink and spreads in the form of a wide corona round the emulsion contact point. The back of the sheet also assumes a deep pink coloration at the same point in the matter of a few seconds, and this color later fades into a pale pink hue. The color changes are readily perceptible.

"A water-in-oil emulsion, on the other hand, does not bring about any change in color, but only a slight change in the blue shade through the penetration of the grease. A mixed emulsion likewise parts with so much moisture that a color change occurs, but much more slowly and in a less pronounced way than in the case of an oil-in-water emulsion. The discoloration of the back of the test sheets through the diffusion of moisture also occurs more slowly, and the pink coloration practically never changes to a pale color. Moreover, the discoloration is confined to the point of contact with the emulsion."

The original article contains four illustrations, and it is to be noted that the emulsion, in an experiment described by the authors, was applied by means of a tuberculin syringe.

—F. V. Wells, *S.P.C.* 34: 98, 1961

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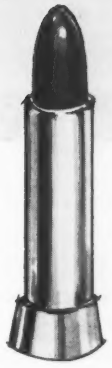

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(*Continued from page 82*)

sion during the first few hours and depress it later. Our experimental setup is not suited for short-range measurements.

3. Finally, the previous authors measured water loss at initial humidities of probably 100 per cent (occlusion) which decreased to 0 after desiccation. Under these artificial conditions glycerin might withdraw water from the skin.

Further studies may help to elucidate the cause of the discrepancy. However, it is of interest that in another acute *in vivo* study we obtained indirect evidence that glycerin increases the moisture content of the skin surface. In earlier work[12] we found that the darkening effect of dihydroxyacetone is moisture dependent and is delayed by high humidity. In unpublished experiments, in agreement with other authors[13] we observed that glycerin had a retarding effect on the browning of dihydroxyacetone.

Effect of Glycerin on the Water Uptake of Horny Layers

The potentiating effect of glycerin on the water uptake of callus is a new and unexpected phenomenon. No other compound is known which increases the hygroscopicity of the keratinous framework of the horny layer. To explain this effect, it is necessary to resort to speculation.

It would appear that glycerin enhances the penetration of moisture between the keratinous fibers. This theory is supported by the finding that increased water uptake occurs in horny layers with a low disulfide content and in pulverized nails where penetration would be relatively easy. When penetration is difficult, as in whole nails, or where the horny structure, because of its high disulfide content, is too rigid to allow penetration, as in the case of hair, glycerin had no effect on the water uptake.

The potentiating effect of glycerin on the water uptake of horny layers is independent of their physiologic hygroscopic components. Therefore, at least theoretically, glycerin could serve as a substitute for these unknown substances. In this respect it is noteworthy that Spier found a close parallelism between the water uptake of the natural hygroscopic components of the human horny layer and that of glycerin at various environmental humidities.[14]

Summary

1. Simple *in vitro* methods were developed for measuring water diffusion and water uptake of human skin.

2. Glycerin decreased the diffusion of water through excised human skin. This action was probably due to occlusion of the skin surface.

3. When mixed with pulverized or intact human horny layers, glycerin greatly enhanced their water uptake under the conditions of the experiment. The effect was one of potentiation, not of summation. It also occurred with water-extracted horny layers and

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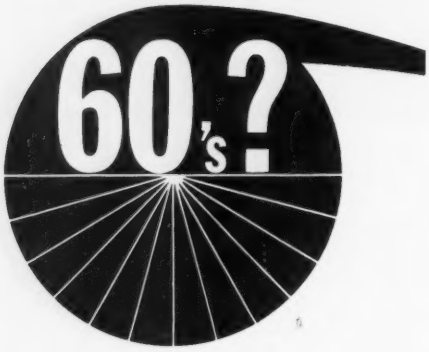

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was therefore independent of the natural hygroscopic components of the horny layers.

4. It is suggested that glycerin penetrates between the keratin fibers of the horny layer and facilitates the absorption of water.

Comment

The following comments on Dr. Flesch's provocative and interesting paper appear in order:

Dr. Flesch was unable to confirm our results on the water loss from living human skin. These differences in results must be attributed to the differences in experimental conditions.

It has been established that the water transport across dermal tissue is an exponential function of temperature, relative humidity and thickness of the skin. None of these were carefully controlled in Dr. Flesch's studies. The importance of temperature control in *in vivo* and *in vitro* experiments becomes apparent when one considers that an increase in temperature from 20° to 37° C. increases the vapor pressure of water from approximately 17 to 44 mm. at 100 per cent. R.H.

We cannot agree with Flesch's interpretation of our data nor his conclusion that glycerin decreases the diffusion of water through skin. Our results clearly show that skin treated with glycerin loses more water to a desiccant than untreated skin. This water certainly comes from moist dermal or subepidermal tissue. Glycerin, therefore, accelerates the diffusion of water from moist dermal tissue to the surface. This interpretation accounts for the beneficial effect of humectants on skin during dry climatic conditions.

The suggestion that glycerin forms an occlusion film on the skin surface is questionable. A hygroscopic substance cannot be a barrier to the passage of water on purely physicochemical grounds. On the other hand, if glycerin were indeed a barrier to the passage of water out of the skin, it must also prevent the passage of water into callus. If the latter were true, Dr. Flesch's data presented in TABLE 1 are in error.

Finally, as regards the "potentiating" effect of glycerin on powdered callus moisture pickup, it occurs to us that this may simply be a phenomenon of increased glycerin surface. It can readily be shown that a given weight of glycerin dispersed over a puffed up ball of glass wool will pick up at least twice the weight of water, compared to a similar weight of glycerin in a small beaker.

Donald H. Powers
Martin M. Rieger
Charles Fox

Author's Reply

Dr. Powers and his co-workers base their reply on the false assumption that I was unable to confirm their results. As I did not repeat their experiments. I never made this statement. "When one sets out to 'check' on the results of another, it is imperative to

follow his technique and each minute experimental detail with the utmost possible fidelity. . . . It is not only more generous but usually more accurate to say: 'for reasons of which I am ignorant, my results were different from A's in such and such respect. The causes of our divergent results require further studies'—rather than to conclude: 'the results of my own very careful experiments have proved A to be wrong.'" (Sulzberger, M. B.: Presidential Address, J. Invest. Dermat., 17:191, 1951).

Concerning the first point raised, we recently measured water losses in a desiccator at 36° C. through relatively big (2 in. diameter) pieces of isolated human skin. Under these conditions, the amounts of water lost were sufficiently large to permit weighings every two hours over a period of 24 hours. In 3 experiments, no increased water loss was observed after the application of glycerin; glycerin had either no effect or depressed the diffusion of water. Therefore, even at 36° C. and controlled humidity, we did not observe any increased water loss in *excised skin* after the application of glycerin.

It should be pointed out that there was no temperature and humidity control in the Powers and Fox studies, either. Although they mention the relative humidity and temperature of the room where the measurements were done, these data are irrelevant. The temperature and humidity at which the actual measurements took place were those of the air under the closed jar containing the desiccator, which certainly had a higher temperature and lower humidity than the room. This remark is not meant as a criticism, only for the clarification of the experimental conditions.

Dr. Powers' teleological assumption that a substance which draws water from the lower layers of the skin will act as a "humectant" is purely speculative and not supported by any evidence. If this were true, then factors that increase evaporation, such as movement of air, would also have a "humectant" effect. This is not the case. Eventual depletion of the water reservoirs in the epidermis may even have an adverse influence and lead to dehydration. On the other hand, an excellent case could be made for the hydrating effect of an occlusive layer which would seal the skin surface and prevent the moisture from escaping. However, such questions are not decided by votes or majority opinions, but by experiments.

Occlusive substances, such as mineral oil or squalene, do *not* prevent the passage of water into callus from an environment of high humidity (TABLE 1). If this finding is unexpected, it is not more surprising than the ability of the horny layer to take up water from 14 per cent salt or sugar solutions.[4] Glycerin could well be an occlusive substance, yet allow moisture to penetrate into the horny layer. The argument that if glycerin keeps moisture from leaving the

(*Continued on page 113*)

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COMING EVENTS . . . .

JULY

16-21 **International Conference on Bio-Medical Electronics and Electronic Techniques in Medicine and Biology** (Dr. R. L. Bowman, Dept. of Health, Education and Welfare, National Institutes of Health, Bethesda 14, Maryland)

17-21 **Gordon Research Conference,** Microbiological Deterioration, Tilton School, Tilton, N. H. (Dr. W. George Parks, University of Rhode Island, Kingston, R. I.)

31 **Gordon Research Conference,** Medicinal Chemistry, through Aug. 4, Colby Junior College, New London, N. H. Steroids and Other Natural Products, New Hampton School, New Hampton, N. H. (See above.)

AUGUST

7-11 **Gordon Research Conference,** Toxicology and Safety Evaluations, Kimball Union Academy, Meriden, N. H. (See above.)

10-16 **International Congress of Biochemistry,** Moscow, U.S.S.R. (N. W. Sissakian, Leninsky prospekt 33, Moscow, B-71, U.S.S.R.)

14-18 **Canisius College Fifth Annual Infrared Spectroscopy Institute,** Buffalo, N. Y.

20-24 **American Veterinary Medical Assn.,** annual convention, Sheraton Cadillac Hotel, Detroit, Mich.

21-25 **Gordon Research Conference,** Food and Nutrition, Colby Junior College, New London, N. H. (See above.)

22-25 **International Pharmacological Meeting** (first), Stockholm, Sweden

28 **Gordon Research Conference,** Cancer, Colby Junior College, New London, N. H. (See above.)

SEPTEMBER

3-8 **American Chemical Society,** annual fall meeting, Chicago, Ill. (A.C.S., 155 Sixteenth St., N.W., Washington 6, D.C.)

4-8 **International Congress of Pharmaceutical Sciences,** Scientific Section, Pisa, Italy (Prof. Dott. A. E. Vitolo, General Secretary, Federation Internationale Pharmaceutique, Piazza Carrara, 10, Pisa, Italy)

5-8 **National Chemical Exposition,** concurrent with the fall national meeting of the **American Chemical Society,** The Chicago Ampitheater, Chicago, Ill. (Chicago Section, A.C.S., 86 Randolph St., Chicago 1, Ill.)

11-15 **Instrument Society of America,** fall conference and exhibit, annual meeting, Los Angeles, Calif.

12 **Society of Cosmetic Chemists,** Chicago Chapter meeting, (S.C.C., 2 East 63rd St., N. Y. C. 21)

12 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

14 **Pharmaceutical Advertising Club,** meeting, Roosevelt Hotel, N. Y. C. (P.A.C., 489 Fifth Ave., N. Y. C. 20)

14-17 **Drug, Chemical & Allied Trades Assn.,** annual meeting, Pocono Manor Inn, Pocono Manor, Pa.

17-20 **First Annual Conference on Pharmaceutical Analysis** sponsored by the Extension Services in Pharmacy in cooperation with The School of Pharmacy, University of Wisconsin, (Richard S. Strommen, 301 Pharmacy Building, Univ. of Wis., Madison, Wis.)

18-22 **Pharmaceutical Society of Great Britain,** Pharmaceutical Conference, Portsmouth, England (P.S.G.B., 17, Bloomsbury Square, London, W.C.I.)

20 **American Society of Perfumers,** closed meeting, Advertising Club, 35th St. and Park Ave., N. Y. C. (A.S.P., 630 Fifth Ave., N. Y. C. 20)

24-27 **Federal Wholesale Druggists Assn.,** annual meeting, The Greenbrier, White Sulphur Springs, W. Va.

26-27 **Society of Cosmetic Chemists** seminar meeting, Barbizon Plaza (S.C.C., 2 East 63rd St., N. Y. C. 21)

29-30 **American College of Apothecaries** annual convention, Jack Tar Hotel, San Francisco, Calif.

OCTOBER

1-6 **National Assn. of Retail Druggists'** annual convention, Hotel Fountainbleau, Miami Beach, Fla.

9-12 **11th Annual Instrument Symposium and Research Equipment Exhibit,** National Institutes of Health, Bethesda 14, Maryland.

10 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C.

10 **Chicago Perfumery, Soap and Extract Assn., Inc.,** luncheon, Sheraton Towers. (Edward F. Laseh, Tenn. Products and Chemical Corp., 200 S. Michigan Ave., Chicago 4, Ill.)

10 **Society of Cosmetic Chemists Chicago Chapter** meeting, Henrici's Restaurant, Merchandise Mart, Chicago, Ill. (S.C.C., 2 East 63rd St., N. Y. C. 21)

12 **Pharmaceutical Advertising Committee** meeting, Roosevelt Hotel, N. Y. C.

14-19 **National Wholesale Druggists' Assn.,** annual convention, Americana Hotel, Bal Harbour, Fla.

16-19 **American Dental Assn.,** annual session, Philadelphia, Pa. (A.D.A., 222 East Superior St., Chicago 11, Ill.)

18 **American Society of Perfumers,** open meeting, Advertising Club, 35th St. and Park Ave., N. Y. (A.S.P., 630 Fifth Ave., N. Y. C. 20)

18-20 **Packaging Institute, Annual National Packaging Forum,** Biltmore Hotel, N. Y. C. (Chas. A. Feld, P.I., Inc., 342 Madison Ave., N. Y. C. 17)

31 **American Society for Microbiology,** first Interscience Conference on Antimicrobial Agents and Chemotherapy, through Nov. 2. Commodore Hotel, N. Y. C. (A.S.M., 19875 Mack Ave., Detroit 36, Mich.)

NOVEMBER

1-3 **Parenteral Drug Assn.,** annual convention, Statler-Hilton Hotel, N. Y. C. (P.D.A., 1420 Snyder Ave., Philadelphia 45, Penna.)

2-3 **Society of Plastics Engineering** Plastics in Packaging, North Texas Section, Sheraton-Dallas Hotel, Dallas, Texas

7-10 **Packaging Machinery Manufacturers Institute Show,** Cobo Hall, Detroit, Mich. (W. L. Redding, Shea Expositions Corp., One Gateway Center, Pittsburgh 22, Penna.)

14 **Synthetic Organic Chemical Manufacturers Assn.,** luncheon meeting, Hotel Roosevelt, N. Y. C. (S.O.C.M.A., 261 Madison Ave., N. Y. C. 16)

14 **Society of Cosmetic Chemists, Chicago Chapter,** Henrici's Restaurant, Merchandise Mart, Chicago, Ill. (See above.)
(See above.)

15 **American Society of Perfumers,** open meeting, Advertising Club, 35th St. & Park Ave., N. Y. C. (See above).●

Skin Research

Dihydroxyacetone Skin Color

Ammonia and its derivatives such as amines have long been known to react readily with carbonyl compounds. Ketones generally are less reactive than aldehydes. Reducing sugars readily form hydrazones, oximes, ureides, and semicarbazones, for example. The interaction of amino acids and proteins with carbohydrates has been shown to be the cause of much of the browning that occurs during manufacture and storing of foods. Richards investigating the interaction between D-glucose and glycine, succeeded in isolating an intermediate in the browning reaction, the enolic form of N-(carboxymethyl)-amino-1-deoxyfructose, which gave reactions of both a sugar and an amino acid. Carbonyl compounds with strongly electron-attracting groups are highly reactive. In the case of DHA, the normal electrophilic reactivity of the carbonyl group is enhanced by the hydroxyl groups on adjacent carbon atoms. Arginine with its nucleophilic guanido group reacts readily with DHA, to form a stable dark brown color after 30 minutes.

The formation of stable intermediates in the reaction of DHA and ammonia suggests a similarity in the mechanism to that described by Richards in interaction between glucose and glycine according to E. Wittgenstein and H. K. Berry (*J. Invest. Dermatol.* 36: 283, 1961). The reaction of fructose with arginine and skin to prdouce a brown color indicates that the browning of skin may be a general reaction characteristic of amino acids and sugars. The rapid development of color which occurs when skin is treated with DHA results from the high reactivity both of DHA and the basic groups of arginine. The decreased color noted when formaldehyde was added as a third reactant is consistent with the observation that formaldehyde is an unusually active carbonyl compound and reacts readily with amino acids by substitution of the amino group. It also combines with ammonium hydroxide to produce a brown syrupy substance. In the reaction of DHA with skin or arginine, formaldehyde probably competitively inhibits color formation.

Arginine is present in proteins of the skin in high concentration. It seems likely that this amino acid is responsible for most of the "tanning" effect of DHA. Variations in color development and the relation to individual variations in amino acid composition of skin should be investigated. The relatively slow rate of reaction of DHA on the skin (6 to 8 hours when applied as a cosmetic) as compared to the rapid rate of reaction of DHA and arginine in vitro (less than 30 minutes) might be due to any one of several factors, such as availability of free amino groups in skin protein, pH of skin, or presence of inhibitors.

Percutaneous Absorption

A method for studying the percutaneous absorption of liquids in humans has been developed and tested by D. E. Wurster and S. F. Kramer (*J. Pharm. Sci.* 50: 288, 1961) to the point where the accuracy and control of variables is sufficient to yield meaningful data which can be handled mathematically. The method depends upon the established rate of excretion of total salicylate in urine being a reliable estimate of the relative rate of penetration through the skin.

The use of hydrous and anhydrous cell systems demonstrated that a large increase in the absorption rate was caused by increased moisture conditioning of the skin.

The magnitude of the effect of moisture on percutaneous diffusional rates has been shown to be proportional to the oil/water distribution coefficient and the water solubility of the closely related test substances. The greatest increase of the penetration rate by moisture was found in penetrant with smallest oil/water distribution coefficient.

First-order elimination rates following percutaneous absorption were established for three salicylate compounds. Nearly identical k and $t_{1/2}$ values were found for all salicylates used in this study.

A linear relationship between the steady state salicylate excretion levels and the surface area of the skin exposed to ethyl salicylate was found. This indicates that the rate limiting step in the experimental system employed is the diffusion of the salicylate ester through the skin.

Dermal Inflammation

Inflammation produced two major chemical changes in the dermis of rats, one local to and the other distant from the site of injury, according to J. C. Houck and R. A. Jacob (*J. Invest. Dermatol.* 36: 451, 1961). Locally, there was a decrease in dermal collagen which was more pronounced after eschar formation. Associated with this loss was a marked local increase in dermal hexosamine and a non-collagenous protein. Evidence for the dermal origin of glycoproteins in the necrotic lesion was presented. During inflammation, the total lipid concentration of the skin decreased, while the water content of the necrotic tissue increased from 55 to 65 per cent of the tissue weight. After eschar formation, the water content fell to 60 per cent of the tissue weight. Subsequent to eschar formation, and during the period of maximum local collagen loss, there was a significant increase

in circulating hydroxyproline.

Distant from the site of local injury, there was an immediate decrease in both 0.5 M saline soluble and insoluble collagen. This loss in insoluble collagen was compensated for with respect to total dermal nitrogen concentration, which did not change, by an increase in insoluble non-collagenous protein. Associated with these changes in the insoluble dermal components was an increase in citrate soluble collagen. The specificity of this loss in dermal collagen with local inflammation suggested the action of a dermal collagenase. Previous work on the effects of cortisol and Dilantin upon the chemistry of rat skin suggested strongly that the specific decrease in the dermal collagen content of uninjured skin distant from the site of local inflammation was a composite of two processes: 1) the enzymatic degradation of insoluble collagen and 2) the attempted synthesis of new collagen to replace that being removed by this collagenase activty.

Antiseborrheic Preparation Testing

Twenty-four selected formulations for the treatment of seborrheic dermatitis have been testd by L. Greenberg (*J. Pharm. Sci.* 50: 480, 1961) for germicidal, fungicidal, and toxic properties.

Under the test conditions, povidone iodine, mercurials, and 4,6-dichlorophenol evidenced the highest antibacterial and antifungal activity.

Of the preparations tested, only bis-lauryl trimethylammonium polythionate, colloidal sulfur, coal tar, and povidone iodine were more toxic to microorganisms than to mammalian cells.

Of the preparations tested, povidone iodine most closely met the test criteria of a high order of lethality to microbial cells and a low order of toxicity to mammalian cells.

Comment: The significance of this work is questionable, since no attempt has been made to relate germicidal, fungicidal, and toxic properties to actual antiseborrheic activity.

Suspending Calamine

A synthetic colloid, Cellosize WP-4400, has been evaluated by J. E. Haberle and W. B. Swafford (*Amer. J. Pharm.* 133; 58, 1961) as a suspending agent for calamine lotion. A modified lotion containing this material has been formulated which has a much slower separation rate than Calamine Lotion USP XVI. This formulation is compatible with phenol and pours easily from small prescription bottles. It also has good spreading propreties, forming a nontransferable film upon application to the skin. The prepaartion of this lotion is simple and can be accomplished with equipment routinely found in a prescription department.

Pyridoxine Tripalmitate

Pyridoxine tripalmitate (ester of vitamin B_6 with a higher fatty acid) is a fat-soluble skin biocatalyst opening up new and interesting applications in cosmetology, according to G. Roccheggiani (*S.P.C.* 34: 547, 1961). It combines the characteristic eubiotic properties of vitamin B_6, of which the beneficial skin effect is well known, with good diadermic absorption, of prime importance for the maintenance and duration of action after the beauty treatment.

The cosmetological results obtained with 0.20 per cent of this product, in creams with varying formulas synergizing skin absorption, were positive, in that there was a manifest tonification and good vascularization of the skin, a marked restorative action and an unquestionably more attractive appearance of the derma. The product also proved efficacious, with an excellent antiseborrhoeic action, in cases of acne.

Progesterone and Acne

The effect of natural progesterone and synthetic progestins on human sebaceous glands has been investigated by J. S. Strauss and A. M. Kligman (*J. Invest. Dermatol.* 36: 309, 1961) by histologic technics.

The administration of natural progesterone in physiologic amounts to prepuberal males and females, postpuberal males and females, and aged females did not change sebaceous gland size or function. Similarly, the administration of two synthetic progestins, 17-ethynyltestosterone and 17-alpha-hydroxyprogesterone-17-n-caproate to similar groups did not change the human sebaceous glands.

On the other hand, in prepuberal males the synthetic progesterone, 17-alpha-ethynyl-19-nortestosterone causes sebaceous gland enlargement and other androgenic effects of puberty.

Sebum production does not fluctuate with the cyclic changes of the menstrual cycle.

Physiological amounts of progesterone have no influence on the human sebaceous glands. It would therefore follow that female acne is not materially influenced by the effect of endogenous progesterone on the sebaceous glands.

Determining Skin Sulfhydryl

The polarographic amperometric titration method for determining —SH and S—S groups has been found by R. Ogura, J. M. Knox, and A. C. Griffin (*J. Invest. Dermatol.* 35: 125, 1960) to be simple, accurate, and highly specific. Results obtained with this method were comparable with those obtained by colorimetry. Small amounts of material can be assayed by amperometric titration and this is a definite advantage since it is often difficult to obtain appreciable quantities of material for study.

Antifungal Compound

A series of trichloromethylthio compounds, synthesized by Kittleson, were evaluated by Daines against numerous phytopathogens and demonstrated to possess significant antifungal activity. Daines showed, in his study, that N-trichloromethylthio-tetrahydrophthalimide (Captan) was effective against phytopathogens. The present investigation by A. B. Kupferberg and G. E. Doscher (*Antibiotics and Chemother.* 11: 72, 1961) was undertaken to determine the activity of Captan, as well as that of other trichloromethylthio compounds, against *Candida albicans*. One of the compounds, 3-trichloromethylthio-5-(1-ethylamyl)-hydantion, to which the generic name chlordantoin has been given, has proved to be the most active against *C. albicans* while being the least toxic to rats.

It was also found to be active in vitro against all of the human fungal pathogens tested and was found to produce synergistic effects in combination with quaternary ammonium compounds when tested for activity against *C. albicans*.

(*Continued from page 105*)

skin, it would also prevent passage of water into the skin, does not take into account the hygroscopic components of the horny layer. These may very well take up water and hold it tenaciously, regardless of whether the water comes from an outside or inside environment of high humidity.

The effect of an increased surface area on water absorption by glycerin was adequately answered in the paper. A puffed up ball of glass wool is not comparable to 200 mg. samples of the powders used; such samples are apparently sufficiently small not to enhance the absorption of water.

A final general remark is in order. Nature does not know any contradictions; these exist in the human mind only. All discrepancies in biology have been projected into it by ourselves. Failure to recognize this human bias has led to many futile and acrimonious debates, such as the famous Warburg-Wieland quarrel over the nature of respiratory enzymes. Two random examples from my own field will illustrate this point.

Italian scientists insisted that melanin contained a pyrrolic ring, while Bruno Bloch stoutly maintained that the pigment originated from dopa. This seemingly irreconcilable conflict was resolved when Raper demonstrated the formation of an indole derivative from closure of the side chain in dopa quinone.[1] The more recent debate over the presence of cholinesterase in nerves around apocrine glands collapsed when Montagna and Ellis showed such nerves in Negroes but not in whites (Am. J. Phys. Anthropol., **18**:69, 1960). Such examples could be multiplied. In the present dispute, both Dr. Powers' and my data will have to stand, unless they are disproved by further experiments. The seeming discrepancy should be attributed to some unknown factor. It is hoped that our work and the controversy will stimulate research in this important area.

Peter Flesch

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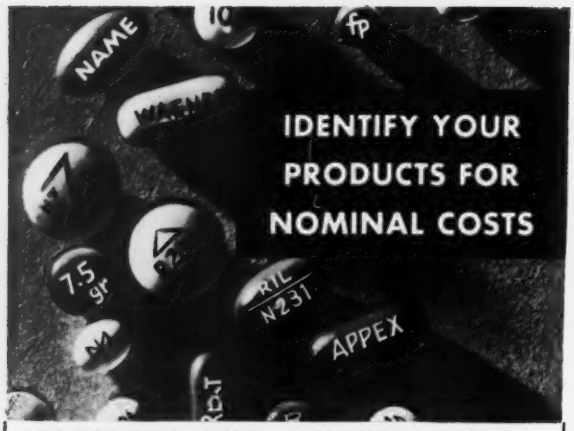

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(Continued from page 33)

I am certain that both would be unpleasantly aware of this changed situation almost immediately. Our samples provide needed information to the prescribing physician; without them for reference and use, the evaluation, acceptance, and prescribing of new products would be adversely affected.

I suggest that this would seriously impede the physician's selection of the proper drug for the individual patient, that it would most certainly delay his initial use of new products, and this would result in a decrease in new prescriptions almost at once.

Thinking about sampling in this light will, I hope, convince you that it is one of the most important prescription-producing practices in our promotional mix. The following quote is pertinent:

"As long as the pharmaceutical industry continues to contribute significant advances in drug therapy, there is no question that evaluation, using samples, will continue to be a very important part of the total information and selling program. . . . Many in sales management, and also individual detail men, have mentioned that it would be well if over-all sampling to physicians could be reduced substantially. . . . Nevertheless, most physicians want to actually see and personally try the product before making it a regular part of their armamentarium."

We are well aware that physicians are dissatisfied with some aspects of current sampling practices. Professional journals all too frequently talk of samples inappropriately directed to specialists with no conceivable interest in them. In our attempt to gage correct sample size we sometimes err either on the side of generosity or we send too little for an adequate trial. The medical profession also takes us to task for samples that end up in waste baskets.

Inefficient sampling indicates distressing waste. However, this should be less of a problem in the future because in the severely competitive pharmaceutical market of today the wasteful company is simply committing economic suicide.

I do not hesitate to predict that inefficient sampling will be less of a problem in the future. Let me tell you why. First, I predict that the ethical pharmaceutical industry will increase its use of test-marketing techniques to make its promotional efforts more effective. Many of these techniques are adaptable to our problems and many of my colleagues feel we should go to the practicing physicians more frequently with our new product information brochures to be certain that they are useful, informative, and practice-oriented. At the same time, they feel that we should also ask physicians to evaluate the packaging and size of samples, as well as the promotional literature.

Second. A number of companies are already using the new tools of electronics to screen physician mailing and calling lists more carefully. Computers are being employed to provide more accurate and discriminating selectivity in our sample distribution. Perhaps the electronic brains will even be able to

advise us as to the best frequency and size of sampling operations.

Third. I have already mentioned our increasing concern over unrestricted distribution of sample material. Some companies now place rigid restrictions on members of their sales force as to the number of samples allotted. I believe that such disciplinary controls will be widely adopted in the coming months.

Fourth. The trend toward distinctive imprints on all tablets and capsules is well under way. The adoption by all companies of such "brands" would do much to eliminate the black market in drugs, including samples that find their way into illegal channels. There has also been some experimentation with inert, placebo samples which would indicate to the physician the color, taste and physical appearance of a new tablet or suspension. Such inert samples obviously would not replace any prescription medication but, of course, neither would they serve one important sample function, that of therapeutic trial.

Before I turn to other matters, I must comment on another, darker element in the future of sampling. The problem of prescribing generically—or the abolition of trade or brand names—is one of the most serious questions we face.

I feel constrained to say that if trademark protection is denied the American pharmaceutical manufacturer, his total promotional program will be drastically threatened. This could mean the virtual end of sampling, a reduction in prescription volume and the slowing to a trickle of the river of vital new drugs. It would amount, in my opinion, to a radical disavowal of a system that has made this country the envy of the world in matters of health.

In conclusion, I should like to summarize briefly the situation I have been attempting to depict for you here today.

First of all, the climate in which we members of the health team function has seen great changes in recent years. A new frankness has entered our relationship with the public; we manufacturers must be increasingly sensitive to the public's reaction to our promotional practices.

Sampling of both new and established drug products is so integral a part of this pharmaceutical business, so vital to its growth, that its continuation is practically a condition of our continuing existence. Only the fatal abolition of trademarks in favor of generic prescribing could put a stop to it. This would be a course ruinous to the industry and to privately financed medical research, and detrimental to the health of the nation.

We as pharmaceutical manufacturers bear a heavy responsibility for improving our knowledge and practice of sampling techniques. Some criticism of these techniques has been justified. Some has been misaddressed to us. We are trying with every means at our command to refine our methods of our own benefit as well as that of our fellow members of the

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health team.

Such refinement is a part of our over-all attempt to streamline the marketing of our life-saving products, but such a program must make haste with deliberation. We must make sure that we are not dumping our hard-won gains in the mistaken belief that whatever is criticized is outmoded.

I believe we can agree that for the future:

1. Our research, product development, and clinical evaluation expenditures will continue to increase.

The rate of new product introductions has been slowed down in recent months but the need for new and better drugs is a continuing challenge.

2. Our marketing programs—our selling efforts—will become increasingly oriented to the needs of a more sophisticated patient. And this patient, our drug customer, is becoming older, his ailments are now long-term, and his capacity to pay is not what it used to be.

3. Economic considerations will necessitate more critical and more selective promotion of all drug products, particularly those which alleviate common and relatively uncomplicated illnesses.

Sampling is especially important with these products because they are used to treat symptomatic conditions in which the evaluation depends on the subjective reports of the patient.

4. Our use of the sampling technique in the professional merchandising of the products of our research will also be more selective, more efficient, and more productive in terms of prescription volume.

DRUG COMPANIES WOO THE DOCTOR

(*Continued from page 29*)

relationship which requires respect and confidence and the kind of individualized attention which cannot possibly be reduced to legislated regimentation."

Mead Johnson, like Robins, is making sure that physicians know about this campaign on their behalf. It prepared a special four-page insert describing the series and ran it as an advertisement in ten medical publications. The insert heralded the campaign as "a new service to strengthen the physician-patient relationship."

Closed-circuit telecasts have been used for some time by pharmaceutical companies as a service to the medical profession. Companies such as Upjohn Co., Smith Kline & French Laboratories, Ciba Pharmaceutical Products, and Merck & Co. have made extensive use of the television camera to bring special programs to doctors. Generally, this activity comes under the heading of good will, with the companies making no effort to sell their products through these programs. In line with the new trend toward cultivation of the doctor, these programs are likely to continue in full force now. Ciba, for example, recently entered into a long-term contract with Theatre Network Television Inc. for the production of a series of

ten closed-circuit telecasts for doctors over a two-year period. The first of these programs was a one-hour telecast produced in *color* at the annual meeting of the American Academy of General Practice in Miami.

The Merck Sharp & Dohme division of Merck & Co. has provided the most spectacular recent example of a pharmaceutical company lending its support to the medical profession. During the annual meeting of the American Medical Association in New York last month, Merck teamed up with the AMA to co-sponsor "Doctor B" over the NBC-TV network. Presented on June 27, this hour-long program covered a day in the life of a general practitioner. Airtime charges on "Doctor B" ran to $100,000, which were shared by Merck and the AMA. This was the first time in the memory of anyone that Merck showed up as a sponsor on network television. The program was devoted entirely to building public confidence in the physician, and Merck associated itself wholeheartedly with this purpose. There was nary a mention of a Merck Sharp & Dohme product, and the nearest thing to a plug was this statement by the program host, Burgess Meredith, during one of the commercials:

"Merck Sharp & Dohme, a leading producer of biological and pharmaceutical products, is proud to be associated with many doctors 'X,' 'Y' and 'Z' in helping to make possible the great medical and pharmaceutical progress of recent years . . . in placing into the hands of Doctor B—and your own family doctor—the means of better health for all."

By making common cause with the medical profession, pharmaceutical producers hope to present a united front among members of the "health team." It should be remembered that critics of the industry have tried to drive a wedge between the industry and physicians by charging that doctors have been "duped" by the pharmaceutical manufacturers. The new subpoenas issued by the Kefauver committee early last month indicate that these charges are going to get a further airing in Washington. Among the companies receiving subpoenas were William Douglas McAdams Inc. and L. W. Frohlich & Co., the two largest medical advertising agencies in the country. These two agencies were directed to produce all records regarding the promotion of the following products:

Parke, Davis & Co.'s Chloromycetin, Norlutin and Midicel; Schering Corp.'s Sigmagen and Trilafon; Lakeside Laboratories' Imferon and Catron; Geigy Pharmaceuticals' Preludin, Butazolodin and Tandearil; Upjohn's Medrol and Panalba; Roche Laboratories' Librium, Marplan and Marsilid; J. B. Roerig's TAO and Cartrax; and Ciba's Ritalin and Singoserp.

In addition, the committee issued subpoenas for several publications sent to doctors by pharmaceutical companies. It seems likely therefore that the

(*Continued on page 124*)

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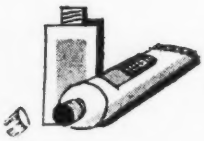

Advancing Therapy

Hair Spray Thesaurosis Again

Dr. Matthew J. Brunner of Los Angeles, in *J.A.M.A.* 176: 1055, 1961, takes exception to an editorial that appeared in the Journal on November 5, 1960 which considered pulmonary thesaurosis, believed due to hair spray, to be a new and definitely established clinical entity. ". . . Discrepancies in Bergmann's work along with the dearth of human cases in spite of massive consumer use and the negative results of experimental inhalation, necessitate the conclusion that there has been no proof of the existence of pulmonary thesaurosis caused by hair spray. The conclusion of Draize of the Food and Drug Administration is thus the only acceptable one: 'The data from both the human and animal exposures indicate that the ordinary use of aerosol hair spray preparations of the composition and physical characteristics of those included in our studies poses no problem of safety to users.' "

Dr. Martin Bergmann of St. Louis, in reply, states that on the basis of his studies, he is satisfied that the editorial was correct and that there is such an entity as thesaurosis or storage disease due to inhalation of hair spray. He does not strengthen his case, however, when he refers to as yet unpublished cases, when he makes the condescending statement, "As a dermatologist, Dr. Brunner may perhaps be unaware of current concepts of etiology of both these syndromes" and when part of his criticism of the Draize work is "Perhaps it was this shortcoming of the paper which prompted the authors to publish it in the journal of the Toilet Goods Association instead of a reputable medical periodical." Dr. Bergmann concludes his letter with the statement that since the publication of the original paper, he has encountered 12 adldditional cases, including three studied at autopsy. Shouldn't these cases be published in a reputable medical periodical, and is it proper to refer to autopsy without indicating the cause of death? Heated correspondence is fun, but let us not confuse it with scientific objectivity.

Methotrexate in Cancer Chemotherapy

Lederle Laboratories has issued a conservative statement to clarify some over-enthusiastic interpretations of Surgeon General Luther Terry's statements concerning the value of Methotrexate in treating some forms of cancer. The ability of the drug to bring about five-year remissions is limited to choriocarcinoma, and only in some cases of this relatively rare form of cancer. The drug is not new—it was discovered at Lederle in 1948 and has been marketed since 1955.

Methotrexate is a folic acid antagonist widely used since its introduction in the treatment of leukemia and more recently in the treatment of certain kinds of malignant tumors. Aminopterin, developed in 1947, produced the first planned remissions in children of acute leukemia, some of whom were kept alive for two or three years with such therapy. Patients developed resistance to the drug, however, and larger doses, which caused toxic symptoms, had to be used. Methotrexate, closely related to aminopterin, is as active as the earlier drug, but less toxic.

Antimicrobial Fatty Acid Derivatives

The antimicrobial activity of various types of fatty acids or fatty acid derivatives has been studied by a number of investigators, using different techniques and organisms. According to Kiesel, the antimycotic action of saturated fatty acids increases as the number of carbon atoms in the chain increases up to eleven, and the branched-chain fatty acids are less active than straight-chain fatty acids of equal molecular weights. Tetsumoto observed that the unsaturated fatty acids are more antimycotic than the corresponding saturated fatty acids, that the normal fatty acids are more active than the isomeric acids, and that the activity is due to he undissociated molecule, not the anion. The fungistatic activity of an organic acid varies with the pH of the test medium; the activity is roughly proportional to the concentration of the nonionized molecules. Cowles found the bactericidal action of fatty acids to be greater at low pH values and the long-chain fatty acids to be more active than the short-chain fatty acids. Keeney *et al.* stated that the long-chain fatty acids are more fungicidal than the short-chain fatty acids. Wyss *et al.* found that the antimycotic action of fatty acids increases with chain length up to 12 carbon atoms, that the unsaturated fatty acids are slightly more active than the corresponding saturated fatty acids, and that fatty acids possessing an odd number of carbon atoms are no more active than the even-numbered homologs. The results obtained by Spoehr *et al.* indicated that fatty acids with 16 or fewer carbon atoms exhibit antibacterial activity; that oleic, elaidie, linoleic, β-eleostearic, and β-licanic acids lacked antibacterial power but acquired it on photo-oxidation; that stearic acid lacked antibacterial power even after photo-oxidation; and that glycerides lacked antibac-

terial power even though the respective fatty acids were antibacterial. The bacteriostatic action of unsaturated fatty acids was observed by Kodicek to increase as the number of *cis* ethylenic bonds increases. It was noted also that branched or straight-chain, saturated fatty acids of 12 to 14 carbon atoms are bacteriostatic.

The antimicrobial action of sorbic acid is related to the concentration of the undissociated acid. There are indications that sorbic acid is an inhibitor of sulhydryl enzymes. According to Sokoloff *et al.*, the oxidation of highly-unsaturated, long-chain fatty acids increases their antifungal activity. The quaternary ammonium derivatives of long-chain fatty acids are very active against fungi; the unsaturated fatty acid derivatives are the most active.

Since it has recently been shown that 10-hydroxy-*trans*-2-decenoic acid possesses antimicrobial activity, ricinoleic (12-hydroxy-*cis*-9-octadecenoic) acid derivatives were screened by A. F. Novak, G. C. Clark, and H. P. Dupuy (*J. Amer. Oil Chem. Soc.* 38: 321, 1961) to determine their potentiality as antimicrobial agents. Oleic (*cis*-9-octadecenoic) acid derivatives were screened for comparative purposes.

Of the ricinoleic and oleic acid derivatives screened for their antimicrobial activity against several species of bacteria, yeasts, and molds under optimum growing-conditions, such as pH, nutrition, incubation temperature, and moisture, several exhibited considerable activity. In general, these compounds did not exhibit as broad a spectrum as sorbic and 10-undecenoic acids, common antimicrobial agents. Ricinoleic acid, 4-ricinoleoylmorpholine, 4-ricinelaidoylmorpholine, methyl 12-hydroxystearate, 4-(12-propionoxyoleoyl)morpholine, and petroselinic (iso-oleic) acid in several cases however were comparable to these positive controls as indicated by this test. In many cases, the various compounds exhibited only a slight degree of inhibition. Even with this limited number of compounds and micro-organisms, observations indicate that it is impossible to make any generalization concerning the antimicrobial activity imparted by various functional groups in the molecule. The β-hydroxy-*cis*-ene system in ricinoleic acid and 4-ricinoleoylmorpholine appears to impart activity to the molecule whereas it appears to decrease the activity in methyl ricinoleate. The β-hydroxy-*trans*-ene system appears to impart activity to 4-ricinelaidoylmorpholine but very little to ricinelaidic acid or methyl ricinelaidate. On the other hand, methyl 12-hydroxystearate and petroselinic (iso-oleic) acid exhibited considerable activity even though neither one of these compounds possesses a β-hydroxy-ene system.

Cyanoethylation or esterification of the hydroxyl group in 4-ricinoleoylmorpholine, 4-ricinelaidoylmorpholine, and 4-(12-hydroxystearoyl) morpholine appears to alter the activity of the molecule, reducing it in most cases, but no generalization can be made.

Similarly, converting the carboxyl of ricinoleic, ricinelaidic, and 12-hydroxystearic acids to morpholino or methyl ester groups appears to alter the antimicrobial activity of the molecule but not systematically.

Some of these compounds might be of commercial interest since they possess such broad antimicrobial spectra. For example, 4-ricinoleoylmorpholine should probably be of interest in paint films, plastics, and other polymeric materials for its antimicrobial as well as its plasticizer properties. In addition, some of the compounds tested may have medicinal applications.

Drugs in Ophthalmology

The main therapeutic approach to toxoplasmosis is a combination of pyrimethamine and sulfonamides.

Wilson's disease (hepatolenticular degeneration) responds to a copper-poor diet and agents that remove copper from the tissues.

Two new anticholinesterases used to treat glaucoma are Phospholine iodide and demecarium bromide. Compounds to reverse the action of anticholinesterases also are being studied, e.g., 2-pyridine aldoxime methiodide.

Neostigmine administered locally may help control the ocular manifestations of myasthenia gravis and aid in diagnosis.

Steroids given for systemic diseases may produce unusual ocular side effects, and some drugs that may be instilled in the eye may produce serious systemic disorders.

Tranquilizers also have produced some unusual complications.

There are still a number of conditions for which therapeutic agents are needed, according to I. H. Leopold (*Postgrad. Med.* 1961, 557).

At present there is no specific therapy for ocular viral infections. Vision is lost today because of such diseases as dendritic (herpetic) keratitis, for which therapy is largely nonspecific and includes approaches such as cauterization with iodine or silver nitrate. While we do have specific therapy for some bacterial and fungous infections, vision still is lost because of postoperative infections with resistant and virulent bacteria—and certainly some vision is lost to fungous infections in spite of amphotericin B.

There is no way to correct cataract except by operation. Glaucoma may respond to medical and surgical therapy, but preventive therapy for persons who seem to be predisposed to the disease is unavailable. Glaucoma tends to have a higher incidence among persons who have a family history of the disease, and it would be exciting to have some way of stopping the disease before it becomes established, with evidence of definite visual loss.

The chief treatment for ocular malignancy such as retinoblastoma and intraocular melanoma is enucleation. Chemotherapy, photocoagulation and diathermy have not been established as superior to radical surgery, although they offer some hope.

Inadequacy of ocular circulation, as seen in vascular occlusions, and macular degeneration do not seem to respond convincingly to anticoagulants or fibrinolysin. In traumatic intraocular hemorrhage and secondary hemorrhage, in addition to the problems of management, there appears to be no favorable method of producing rapid absorption of blood from the eye. We have to wait for nature of absorb the blood, and this predisposes, to glaucoma, staining of the cornea, and loss of visual acuity.

There is general awareness of the major problem of diabetic retinopathy. Much has been written about it but little has been done actually to reverse the changes in the eye or even to prevent this serious complication in patients whose diabetes is well controlled.

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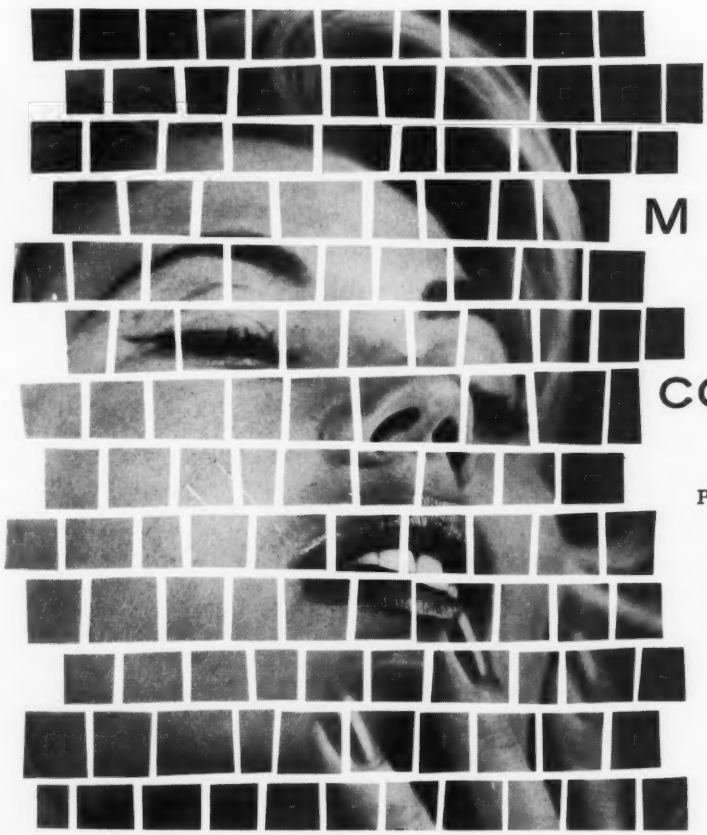

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Glossary Of Packaging Terms, *Third Ed., Compiled and Published By Packaging Institute, 342 Madison Ave., New York, 172 pp., looseleaf, paper binding (1961),* **$3.50.**

This presents standard definitions of trade terms commonly used in packaging, in the belief that industrial progress is facilitated when basic terms used by a particular group in industry have been standardized. This glossary will contribute to that end for the packaging industry.

Quantitative Methods in Pharmacology (Proceedings of a Symposium Held in Leyden, May 10-13, 1960,) *Edited by H. De Jonge, Department of Statistics, Netherlands Institute for Preventive Medicine, Interscience Publishers, Inc., New York (1961), cloth,* **$13.25.**

The Symposium on Quantitative Methods in Pharmacology, sponsored by the Biometric Society and organized by its new Netherlands Region, was held in the auditorium of the Department of Physiology, University of Leyden. As the title already indicates, the purpose of the symposium was to present and exchange current knowledge in the field of quantitative (statistical) methods in pharmacology. Part I—Sequential Analysis; Part II—Standardization Of Drugs; Part III—Parametric or Nonparametric Statistical Methods; Part IV—Screening of Drugs; Part V—Mixtures of Drugs; Part VI—Miscellaneous Topics.

Calculations in Pharmacy, *by Sue H. Rouse, M.S., Assistant Professor of Pharmacy, and M. George Webber, Ph.D., Associate Professor of Pharmacy, University of Houston, College of Pharmacy, 234 pp., J. B. Lippincott Co., Phila. (1961), cloth,* **$5.**

In the opinion of the authors of this work the large number of students who fail in the study of pharmaceutical calculations can be attributed to several basic causes: an inadequate training in the fundamentals of arithmetic, a lack of diligence in learning definitions and mathematical tables, and an improper sequence of the topics to be mastered. This text points out the pitfalls of the subject matter and emphasizes the importance of accuracy and intends to stimulate the student to master fundamental definitions. Contents: 1—Basic Mathematics Review; 2—Weights and Measures; 3—Reducing and Enlarging Formulas; 4—The Relationship of Systems; 5—Percentage Preparations; 6—The Calculation of Doses; 7—Density, Specific Gravity and Specific Volume; 8—Additional Calculations Pertaining to the Strength of Preparations; 9—Ratio Strength, Triturations and Stock Solutions Ratio Strength; 10—Concentration and Dilution; 11—Temperature Conversion; 12—Commercial Calculations; 13—Isotonic Solutions.

Visual Problems of Color, *Volume I, 395 pp.; Volume II 367 pp., Chemical Publishing Co., Inc., New York (1961), cloth,* **$8.50 per volume.**

This work contains the proceedings of the symposium on the visual problems of color held at the National Physical Laboratory from 23rd to 25th of September, 1957. It was first published by Her Britannic Majesty's Stationery Office in 1958 with the first American Edition published in 1961 by Chemical Publishing Co. Volume I covers retinal chemistry and the physiology of vision; visual pigments, particularly in relation to color vision; brightness matching and color matching; as well as color vision and the natural image. Volume II covers subjective color measurement, temporal effects, and defective color vision; electrophysiological aspects of vision, particularly color vision, and color theories.

The Chemical Formulary Volume XI, *Edited by H. Bennett, Technical Director, Cheminform Institute, 416 pp., Chemical Publishing Co., Inc., New York (1961), cloth,* **$8.**

This is the latest volume in the collection containing practical, commercial formulas and recipes for making thousands of products in many fields of industry. Volume XI, as does its predecessors, counts numerous well-known experts among its contributors. It does not duplicate any of the formulas included in the previous volumes, but lists a wide array of modern and salable products from every branch of the chemical industries. Chapter IV covers cosmetics and drugs, and chapter XX, soaps and detergents.

The Fixed Eruption (A Possible Hazard of Modern Drug Therapy, *by Ashton L. Welsh, M.S., M.D., University of Cincinnati, College of Medicine, 248 pp., Charles C. Thomas—Publisher, Springfield, Ill. (1961), cloth,* **$9.75.**

Preparation of this monograph was undertaken for the purpose of bringing together within one book information about fixed eruptions. Such eruptions are produced in certain individuals by certain drugs and/or chemical allergens, remaining confined to certain areas which differ from adjacent unaffected areas in no known or demonstrable manner, recurring in previously-reacting areas after exposure to specific excitants. Fixed eruptions are visible manifestations of localized tissue hypersensitivity, having no apparent connection with familial or constitutional tendencies, local or general disease, pathological or physical states. Fixed eruptions demonstrate the basic phenomena of allergy: that certain circumscribed areas of the body can be specifically and highly sensitized, while other portions remain immune.

Reagent Chemicals (American Chemical Society Specifications 1960), *Prepared by the 1960 Committee on Analytical Reagents, 564 pp. (1961), cloth,* **$10.**

In the five years since the last edition of this work, many significant advances have been made in the manufacture or testing of reagent chemicals. Manufacturers have continually improved the quality of their chemicals; many new reagents have been added to the list; and scores of revisions have been made in the specifications and methods of test. A new section, "The Gravimetric Determination of Small Amounts of Impurities," has been added, wherein are details and precautions for the precipitation, collection, filtration, ignition, and weighing of small precipitates and residues.

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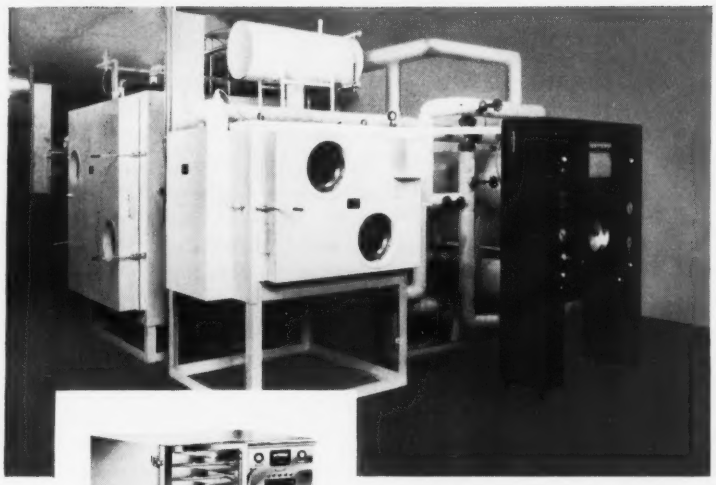

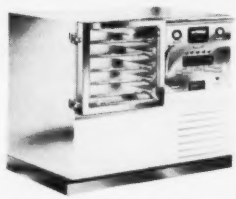

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(Continued from page 117)

whole area of drug promotion to doctors will be scrutinized by Kefauver investigators.

Judging from records available for the first six months of 1961, the Kefauver probe is already having a potent effect on medical advertising. Advertising budgets appear to have been cut back sharply, and the leading medical publications are showing declines of several hundred pages of advertising for the first half of the year. One of the affected parties is the American Medical Association, which derives more than half of its revenue from advertising in its publications.

Heads of pharmaceutical advertising agencies also report privately that Kefauver is having a decided effect on the type of advertising being produced. They say that it has become difficult to get clients to okay dramatic promotional devices for products. The feeling among manufacturers is that now is the time to go easy and not provide any ammunition for the host of critics waiting on the sidelines.

What you have then are two results: Lower ad budgets and more conservative advertising. On the other hand, companies are receptive these days to ideas about how they can tell their stories—to the doctor and to the public. Hence you have this rash of activity on the institutional "we love the doctor" front—and there will probably be more of it in the

(Continued on page 128)

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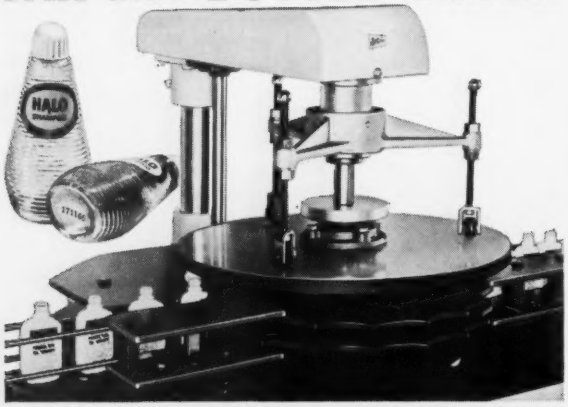

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TRADE LITERATURE

Table Feeder. B-I-F Industries, P. O. Box 276, Providence 1, R. I.—4-pg., illus. bulletin (#23-02.20-1) describes the self-contained, lightweight portable Table Feeder, Model 23-02, for dry materials.

Essential Oils. Magnus, Mabee & Reynard, Inc., 16 Desbrosses Street, New York City 13—36-pg. catalog contains more than 1150 listings of essential oils, balsams, oleoresins, concentrated flavors, basic perfume oils, aromatic chemicals, certified colors, and technical information.

Punch and Die Service. W. C. Bobbitt, Punch and Die Division, F. J. Stokes Corporation, 5500 Tabor Road, Philadelphia 20, Penna.—4-pg. bulletin (#455) describes and illustrates expanded facilities for designing and producing precision punches and dies.

Food Emulsifiers. Glyco Chemicals Division, Chas. L. Huisking & Co., Inc., 417 Fifth Avenue, New York City 16—12-pg. catalog lists food emulsifiers including new products cleared by the FDA, details on applications, and regulations concerning permissible usage levels.

Aluminum Foil. Aluminum Company of America, 747 Alcoa Building, Pittsburgh 19, Penna.—58-pg., illus. booklet describes aluminum foil with full-color photographs, and the story of Alcoa's research and development of foil. Technical data and various laminations are outlined.

Pressure Sensitive Adhesives. National Starch and Chemical Corporation, Dept. A, 750 Third Avenue, New York City 17—9-pg. bulletin (#301) is a guide to pressure-sensitive adhesives, including types, property specifications, and applications.

Price Catalog. Dodge & Olcott, Inc., 75 Ninth Avenue, New York City 11—36-pg. price catalog lists essential oils, aromatic chemicals and specialties, certified colors, and includes short descriptions and uses of products.

Colloid Mills. Premier Mill Corporation, Department 29, 224 Fifth Avenue, N. Y.—illus. brochure on the complete line of colloid mills and Dispersator Mixers contains information on the application of these mills and mixers.

Chemical Corporation. Hodag Chemical Corporation, 7247 North Central Park, Skokie, Ill.—20-pg. brochure describes the products and the services of the company, and illustrates the laboratory and manufacturing facilities.

Product Data. Benzol Products Company, 237 South Street, Newark 5, N. J.—62-pg. catalog includes complete specifications on all products, with lists of chemical intermediates and research chemicals.

Handling Conveyors. Conveyor Systems, Inc,. 6451 Main Street, Morton Grove, Ill.—56-pg. illus. brochure describes engineering systems, special applications, and package and bulk handling equipment.

Polyethylene Glycols. Union Carbide Chemicals Company, 270 Park Avenue, New York 17, N. Y.—65-pg. booklet describes the properties and uses of Carbowax polyethylene glycols. Included is information on physical properties; solubilities; specification limits; test methods; storage, handling, and shipping; toxicological properties; and selected literature references.

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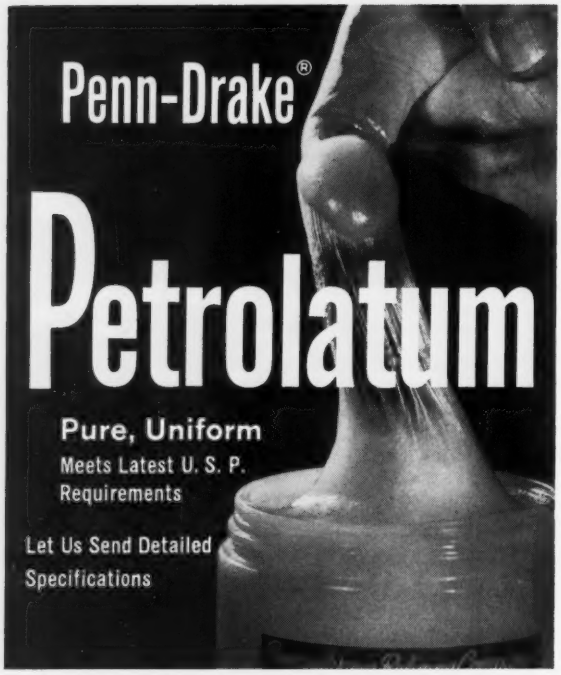

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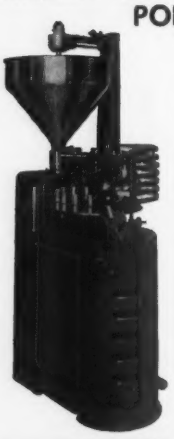

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Behind The Markets

LIVELY LEMON...

There is hardly anything that can disturb and alarm a manufacturer more than the threat of shortages or uncertainties in the supply of an essential material in his product.

It is bad enough to have price uncertainties and wide fluctuations in price, but, after all, this has always been accepted as a necessary challenge in the purchase of raw materials. Uncertainty of supply, however, not only threatens the manufacturer's ability to make good on his contracts or necessary deliveries, it also threatens his competitive position, upsets his planning in sales, advertising and production schedules, and, as a matter of fact, if the threatened shortage of a basic essential of his product becomes severe then there is real grief and trouble.

There has been a definite trend in the last few decades away from natural raw materials and toward the standardized substitutes or replacements that are under complete control as to supply and have a somewhat higher degree of stability in price. These conditions have not, of course, been the basic reason for the tremendous growth of the aromatic chemical industry, but they have certainly helped.

When a situation occurs in an important natural material, such as has been taking place in the lemon oil market during the last couple of years, it not only substantially upsets a number of manufacturers, for instance, the soft drink people for whom lemon oil is an essential ingredient of their formula, but it arouses considerable uncertainty about many other basic materials which may not be at all uncertain at that particular moment.

Lemon oil, within a period of months, has gone from being a bountiful crop with an oversupply and a series of declining prices that startled the wits out of consumers and even the prominent dealers, into being a seriously undersupplied, with the definite threat that some contracts cannot be filled and accompanied by rapidly rising prices.

The trouble is that consumers can do very little about this situation. California lemon oil has a virtual monopoly bestowed by nature, and a consequent near monopoly not only in this country but extensively throughout the world wherever lemon oil is used. The California oil has a light, pleasant fragrance and a light, pleasant taste, which makes it ideally suitable for soft drinks, candies and many other uses. At the same time, modern techniques in processing this oil in California have reached a high degree of automation, which makes it probably the most efficient operation in the world in extracting a natural perfume or flavor oil.

Because the California oil is predominently produced by one enormous cooperative organization, to the extent of at least 70 per cent of production, and by several smaller co-ops and independents who work very closely with the one big co-op, it was thought that there would be at least some degree of stabilization and warning of future market trends, which would give some degree of security to people who have committed their formula to this oil.

As would be expected, both dealers and consumers have been looking around the world for a relief from this situation. They have found very little to comfort them. A big soft drink manufacturer, through a recent merger, has established a strong position in Florida, and it is reported that these people are conducting very serious experiments in growing suitable lemons in Florida.

Lemon Oil USP California

	High	Low
1960	$3.10	$1.25
1959	3.25	2.70
1958	4.00	3.00
1957	4.25	3.00
1956	6.00	4.05
1955	6.00	4.50
1954	7.25	4.90
1953	7.25	5.65
1952	6.00	4.50

Italian lemon oil, which has a far older commercial history than the American oil, is not only limited in supply, it is in great demand in Europe and is quite a bit more expensive. This is a heavier oil with a richer odor note and is much preferred to the California oil by many perfumers for cosmetics and perfumes. It is a standard ingredient of the classical cologne, and is used in at least two famous perfumes.

This situation will undoubtedly blow over. Lemon oil will again become more stabilized in supply, prices will again begin to stabilize and perhaps the whole episode will be forgotten in a few years. Nevertheless, a lot of consumers and dealers are irritated and unhappy; they have lost a certain degree of confidence in the big supplier and some sound as if they will never again be quite the same. •

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(Continued from page 124)

future.

Abbott Laboratories is expected to become a new fighter on this front in the near future. Abbott has a new program set to roll this summer, consisting of an advertising campaign directed to the medical profession. This campaign will reportedly seek to present the industry's viewpoint to the physician. The Pharmaceutical Manufacturers Association already has such a program in operation but Abbott, a company with a strong streak of individualism, wants to tell the story in its own way.

PATENTS AND TRADEMARKS

(Continued from page 94)

usage in electrical insulating and connecting (CCPA). The court seemed to be impressed by the fact that both parties use the marks in question as mere secondary trademarks; that is, it felt that purchasers would not attribute much significance to either of the marks in issue.

Huvilon vs. Uvinul. The prior user of Uvinul for ultra-violet light absorbers could successfully oppose the registration of Huvilon for polyurethane foam prepolymer (CCPA).

It appears that Uvinul ultra-violet light absorbers were recommended for incorporation in polyester resins of which the polyurethanes are one category. Also, it was shown that the two classes of products would reach the same customers and could be used in the same final product.

The court felt that the two marks resembled each other quite a bit in sound and in appearance. Also, the fact that neither name has any meaning apart from the goods makes it difficult for the purchaser to keep the names clear of possible confusion based on these similarities. Consequently, the court ruled that there was a likelihood that a purchaser would ascribe common origin to the products sold under the marks.

Creme Extrordinaire vs. Extrordinaire. The TAB ruled that concurrent use of Creme Extrordinaire for creamy emulsion for use as a cosmetic face cream and Extrordinaire on cosmetic and toilet preparations, including perfumes and colognes, would lead to confusion of purchasers. Accordingly, Faberge, Inc., was ruled the winner in its efforts to prevent the registration by Elizabeth Arden Sales Corporation of Creme Extrordinaire.

Charm House vs. Charmin. Although the two marks were used on similar goods, for example, toilet tissue, paper towels and paper napkins, the TAB felt that there was no likelihood of confusion because the marks neither look nor sound alike, nor do they have similar connotations. •